CAMPING OUT

WARREN H. MILLER

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THE EXPLORER'S WALL TENT,
PUT UP WITH SHEARS AND RIDGE POLE

CAMPING OUT

BY

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PREFACE

Camping out may well be classed as one of the liberal arts, so wide is its application. Once the bulwarks of civilisation are removed, veteran and tyro alike come under the same skies, and must conform to the same principles governing life in the open. Whether one hits the far trail, by canoe, pack train or back pack, or whether one camps within easy distance of team transportation, the same actualities of weather, insect life, camp cookery, and shelter confront one, and their successful solution must be achieved to make the camp an enjoyable memory. Virtually the only difference is in the limitations of weight imposed on the nomadic camper who travels in the wilderness, which limitations are by no means as exacting when the camp is permanently located for the proposed stay. Hence a book on modern camping out would have to contain chapters adapted to both kinds of camping, since the equipment used would vary greatly, while the general system would remain the same.

While perfection of detail and organisation in the travelling camp is an essential, it makes no less for convenience and saving of time in the permanent one, so one may as well learn how the vet-

eran does it from the start, for no experienced man will tolerate hardships and discomforts as part of the accepted régime of his camping out. He needs his strength for the toil of the trail and so requires a restful camp quite as much as does the man who merely wants to loaf in the woods and do it at a minimum of discomfort.

Perhaps the author's experience of thirty years of camping out in all climes and conditions, going once a month throughout every month of the year, and often once a week in the fall and spring months, will enable him to produce a useful volume on the subject. The reader will find that this book covers a wide range, from the *de luxe* camping of the man who can afford a fine outfit and goes to the woods for rest and recreation, to the explorer's and hunter's camping, where getting into big game country or little-travelled lands far from the nearest railroad involves the utmost of comfort on the minimum of weight. Between the two lie many variations, such as the canoeist's trip, the lone hike, the automobilist's trek, the winter cruise by snow shoe and toboggan, the late fall camp where the tent stove becomes a feature, and the beach camp where sand and wind offer a new set of conditions requiring special solutions.

While the general scheme of modern camping is the same throughout, the reader will find that each kind of outdoor life offers its own special features, and, as nearly all of them will be tried by the enthusiast at one period or another in his

development as a master camper, reading up on the subject before getting into the practice of it will well repay. It is the author's hope that a camp for every kind of trip has been well covered within the limits of this volume. The permanent log shack has purposely been omitted, for the reason that, as a rule, new scenery, new adventures at each succeeding season appeal more to the outdoorsman than a return each year to the same spot, every foot of which locality becomes all too soon too well known to excite further interest.

WARREN H. MILLER.

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CAMPING OUT

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CHAPTER I

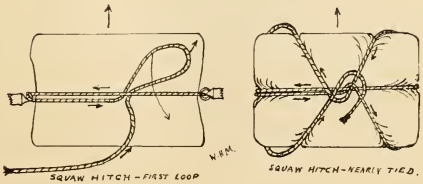
PACKING YOUR OUTFIT

Like the birch-bark canoe, portages and packs have been with the native Red American since long before the white man came. Curiously, the original Iroquois pack, with its wooden frame, is the type which represents the survival of the fittest, for the latest pack of the present moment is of this type, after years of trial with pack baskets, harness, packsacks, and rucksacks, all of them white man's inventions. The Indian had just two carrying devices, the tump strap and its thongs, and the carrying frame. These two seem to have been universally distributed all over the country. With modifications, you will find them from the Micmacs of the extreme Northeast to the Papagos of the Southwest, the tump strap being made of every conceivable natural material from rawhide to woven basswood fibre, and the frame

varying in the same way, according to the material available in the region in which the particular tribe lived. With the Iroquois it was made entirely out of mockernut hickory, including the tump line, not a stitch of animal matter appearing in the makeup; with the Pima and Papago the frame is a mere natural fork of mesquite, spreading a deep net of yucca fibre. With all of them the two main natural principles of big weight portable by the strong neck muscles, and a frame holding the load off the small of the back and transferring its thrust to the brisket muscles, are the guiding motives in the design.

For, while a load with shoulder harness is very limited—say, 60 pounds as a maximum—the amount that can be carried with the tump line and frame runs up into the hundreds of pounds. The reason why shoulder harness has such a low limit is not the fatigue nor the disposition of the load on the shoulder blades, but the mere fact that constriction of the big arteries of the arms is produced by the pressure of the straps passing up from under the armpits over the breast muscles. Any one who has carried a packsack much will recall that the first warning that the pack is too heavy is a numb and prickly feeling extending over the entire arm. If not relieved, the arm steadily

THE TUMP LINE—THE RED MAN'S CARRY-ALL



THE SQUAW HITCH

gets worse and you have the same sensations of "foot asleep" as when that member is unduly sat upon. At what weight this takes place depends on the pack, the tightness and width of the straps, and the weight carried, but a limit of about 60 pounds is the general maximum. Personally, I limit my pack to 35 pounds, with maybe 40 for a start-off; but, for real comfort, you want 27 to 30 pounds, and that you can carry all day without discomfort. Wherefore, if you are on a light hiking trip with rod or rifle, a trek across gamey country on foot, take a packsack and study lightness to the last ounce. There is no trouble in having all the comfort you want, only you must give it thought and get the right equipment for such a trip.

There is no gainsaying the fact that, to the man unaccustomed to the tump line, the strain on the neck muscles which have never carried any such weight is very annoying and painful for a few days. Also, as one instinctively grasps the strap thongs up near his ears, to steady and ease the load, one has no freedom at all; in fact, thump-line work is mere carrying, to be got over as soon as possible and nothing else is done or thought of when it is going on. With the packsack, on the contrary, the sooner its existence is forgotten the

better; quit fighting your pack and put your attention on the scenery, game chances, objects of interest along the route, and let the fact that you are carrying your outfit with you on your back become a side-line in your attention. This is easily done with a light pack of around 30 pounds; with a heavy one it is not so easily ignored, whence, again, study lightness.

But where the tump line excels is on the canoe portage. Here you have a good canoe bottom to carry all you possess, for hundreds of miles maybe, and extreme lightness is not necessary unless there are only two of you, when again it becomes advisable in that each can carry his load in a pack-sack and each also take an end of the canoe, thus doing the whole portage in one lap. With a crowd on a canoe trip, at least half of them will be loaded up with a quantity of stuff that they are personally sure they cannot do without. Usually these are the wealthy members of the party, who have always hired guides to do their hard work, and their load is usually double that carried by the seasoned canoeists. What's to be done? If we make the portage in two trips, that will mean ten miles of walking if the portage is three miles long, and a whole day lost in doing what ought to be but a few hour's job. The only answer is

the tump line. Load up the wealthy with their own plunder, put a tump line across each one's forehead, and take the residue of their stuff yourself, in addition to your own outfit. It's the only way to make progress!

Again the tump line looms up as the only practical thing when you are out for a cruise in the wilderness that will last a month or two, and several hundred pounds of food must be considered, besides a lot of things that might be gone without in a short trip. There is no getting away from this weight; it stares you in the face at the first portage—whence the tump strap, and, to ease its privations, the frame carrier.

The commonest way to use the tump line is with tent cloth or ground cloth spread out flat and the tump thongs laid lengthwise of it, about the right distance apart to come a foot longer than the width of your bundle. All the surplus cloth is folded in over the thongs, and then one's possessions are piled on the folded-in cloth, soft articles like blankets and clothing on the under side that is to come next your back. The bulk of these goods, pressing down on the folded-in flaps of your tarp, will keep them from pulling out again, and you now roll up the tarp over the pile of duffle, folding it and then puckering the ends by drawing tight

the tump thongs. After adjusting these so that the tump strap has just enough thong to let the pack come down a little below your shoulder blades, you tie each thong on its own standing part and take the ends and pass them around the pack both ways, precisely like tying a bundle. The tump strap is 18 inches long by 2½ inches wide, and the thongs are each 8 feet long, of ⅝-inch rawhide. The Indians cut or weave the strap in one piece with the thongs, and learn by experience just how much thong to leave to have the pack hang right, but a white man's improvement has been to have each end of the tump strap with a buckle and the ends of the thong straps pass through these buckles, so as to be adjustable—an improvement worth while, for even a single strap-hole may mean the difference between discomfort and tolerable carrying. Such a pack will carry without punishment after the neck muscles are accustomed to it, and a load of 40 to 50 pounds is plenty for a beginner to start on. Later the pack itself can weigh 60 pounds, and on top of it will be piled duffle bags, flour sacks and what not, bringing the weight up to maybe 120 pounds, which is all any man not inured to the work should allow himself. No artery or vein is now under pressure and the whole load can be thrown off with a twist

of the neck, a most important feature in going over rough, mountainous trails or fording a bad, slippery stream.

As stated before, you will find that your hands instinctively reach for the thongs on each side of your neck, to ease the pack and steady it on your shoulders. Further, with either packsack or tump pack, a great relief will come when you double your fists over your back under the bottom of the pack, thus tilting it forward. Just why this is so is not apparent under the laws of mechanics, since pushing out the rear end of the pack simply moves the centre of gravity that much further away from the point of support; but, nevertheless, it is a fact of most practical application. I usually perform this tilting function with my coat doubled up through my belt, thus leaving my hands free; otherwise they will be constantly creeping back there to help ease the load. This natural fact has not been overlooked by the world's packers. The Swiss guide and the Red Man alike have devised frames of one sort or another to take the place of the arms and hands doubled behind under the tail of the pack, and the Alaska pack, with its wooden side frames, is the prospector's answer to the same requisite. One of our best outfitting firms has worked up this experience into a new

pack, consisting of a light rectangular steel frame inside of which is secured a stout canvas square stretched taut, the frame being perhaps 10 by 16 inches. This frame has a V-shaped form in the centre of the top bar, to which are attached broad shoulder straps. At the two upper corners are attached the ends of the tump thongs, and down near the lower end are two stout steel uprights supporting a belt-shaped leather hip strap, so as to tilt the load backward and keep the pack from getting your back hot and sweaty. It also prevents it getting down into that fatal spot, the small of your back, from which even a light load will soon pull you down. The shoulder straps not only take part of the load off the tump strap, but they steady the load so that one's hands are free. Any load you have can be lashed to this carrying frame or pack, and the amount that a light man can carry with it is surprising. I toted a 160-pound man with it with ease, yet I only weigh 130 pounds and limit my knapsack load to 30 pounds.

The earliest forerunner of this type of pack is the Iroquois pack frame, mentioned before. This is a rectangular frame, 14 inches high by 18 wide, and its horizontal bottom sticks out some 12 inches from the wearer's back. The drawing shows how it is made. Three 1-inch sticks of hickory 14 inches

long are first cut, and these are notched in about an inch from the ends and at intervals of every 3 inches, to take the ¾-inch frame members. These are hickory sticks, 36 inches long and notched out near the ends and middle to pass around the notches in the inch sticks, which, being tough, pliable hickory, they will easily do. They are doubled over the ends and lashed with thongs made of the bark of the same hickory (mockernut). Strips of the same bark are next woven in between the frame members, and two strong platted thongs are run from the top to outer corners of the horizontal frame, and you then have a strong carrying frame made entirely out of one hickory sapling and which will carry any kind of load. The tump thongs and strap are also made of hickory bark in this particular specimen, the strap being softened on the forehead side with woven cedar bark. The thongs are tied around the upper cross member of the frame. Any one with a taste for woodcraft should be able to complete such a frame in two hours, with no other tool than a jack-knife.

A sort of first cousin to the tump strap is the Siwash pack, much used in the Northwest. To get around the fact that the shoulder strap of a packsack, if heavily loaded, will stop circulation in your arms, the Northwestern Indians trans-

ferred the pressure of the strap to the shoulder and back muscles, thus getting away from the big arteries and veins that pass up under the muscles of the breast. To do this a yoke crosses the chest, well above the swell of the breast muscles and two broad straps proceed from this yoke over the shoulders and around the pack. From their ends a couple of cords are led up under the armpits and tie with a slip knot in grommets or eyelets in the yoke. Thus no heavy breast muscles come under compression from any strap, and in case an instant release from the pack is wanted, simply pull the ends of the ropes, pulling out the slip knots and letting the pack fall off your back.

When we get into the realm of light loads, the packsack comes into its own. If the straps are led from a single yoke or ring in the pack they will have no tendency to come off out over the shoulder ends so that no breast strap is needed, and the weight of the pack will be put on the heavy muscles of the neck and the pressure upon the breast muscles relieved. This at once eliminates two principal objections to the shoulder harness, its danger to the carrier in case of a tumble due to the breast strap holding it fast and its constriction of the circulation channels. For, with no breast strap, a throw of the shoulder disengages the pack, and the

location of the straps meeting in one point behind the neck runs them where they cannot do harm to the bodily circulation, whence all good packs are so hung. And so we find it a favourite pack for all light hunting, cruising, etc., and a number of good models are to be had. The simplest is a plain strap harness, capable of carrying two or more tump bags side by side. This is furnished also with a variation in the shape of tump line carrying strap and thongs in addition to the shoulder harness. The weight is very light, 1¼ pounds, and if one's tent or other article of equipment is used for the pack, no useless weight is carried.

For short hikes or trips where only a blanket and light cook kits and a few pounds of provisions are carried, or for daily hunting away from the base camp where a few light articles like camera, lunch, binoculars, a belt axe and a stew pot are taken along, there are a number of light ruck sacks on the market weighing from 12 ounces to a pound, and these provide the best way to carry these things, where they will not be in the way when going through the brush or climbing. The smallest pack I know of is that originally made by me for my little daughter out of a shotgun shell bag. The straps of this were cut off and re-arranged as shoulder straps, and were held from slipping by

a tape across the breast. This bag is now carried by my youngest son, aged six, and holds his quilt sleeping bag, some tackle, a waterproof tarp and some small odds and ends, and on top of it is strapped his blanket roll. This pack has been out with him a number of times, and I note that it is now on the market by one of our well-known outfitters.

Continuous use of the packsack for ten years led me to develop its possibilities as a sleeping bag. Any bag big enough to hold duffle for a long trip will, counting in its flap, be about 6 feet long if opened out lengthwise. Supposing that it is some 27 inches wide when flattened out, it would make the top half of a good sleeping bag if lined with some wool batting and wool cloth. Remained then only the bottom to provide for, which was easily done by devising a light folding mattress, and you had a packsack sleeping bag that could be made very warm on very little weight, and did away entirely with the bulkiness of an equal weight of blankets. I worked over this scheme for two years and finally developed a very efficient outfit. My original bags were made of heavy 10-ounce paraffined duck which had the disadvantage of sweating somewhat in a broiling sun. The lining was of mackinaw, than which there is nothing

warmer for its weight unless it is pure wool batting. In between the mackinaw and the backing went a layer of wool batting, shingled and quilted. This covering was warm down to about 32 degrees and weighed 4½ pounds. For temperatures below that I added a second facing of mackinaw, which added 2½ pounds to the weight of the bag and made it warm down to about zero. This was at first fastened with glove snap fasteners, but I soon found out that all these patent devices are hard to repair in the woods, and plain buttons that can be sewed on at any time made the best fastener. If you stepped on one of those patent glove fasteners once it was out of commission from that time on.

This pack was laced up with rawhide thongs rove through grommets along the edges spaced every three inches. To make a wind-tight seal on both sides and bottom of the bag I left an overlap of four inches of mackinaw which was tucked in when the bag was laced up. The bottom half of this bag was originally just a browse bag to be filled with any kind of browse and it was always the warm side, no matter what went in it. It is the top side that must have plenty of covering. But green browse is cold, and if picked in snowy weather will have snow and ice on it which thaws out from the heat of your body. So the bag was

made with a waterproof interior lining and faced with blanketing, bringing its weight up to three pounds. Then, to get away from picking browse, I experimented further with this bottom half until I finally worked it into its present form, a thin mattress of an inch of wool batting, faced with flannel, and backed with light waterproof cloth, the bag feature being omitted entirely. It is better in the long run to pile your browse where you want it and can get at sticks and cones that may be in the heap, and if all this is in a bag you will have a fine time chasing a cone or root six feet away from the open end, which cone or root has managed to get just where it will puncture your shoulder blades. As it now stands, the mattress weighs 3 pounds, as before; can be thrown down on wet browse or none, and is even reasonably comfortable on a plain board floor.

It took six minutes to lace up this bag as a sleeping bag or a packsack. As you have all the time in the world to do this after supper, I never bothered about any patent hooks; but my friends, who think they want speed, insisted on snap hooks instead of the lacing. These I put on originally in army bronze, but as this must be done with a special riveting machine, impossible to come at in the woods, and as the machine was continually

setting the rivets so hard that they snapped off later from the strain, I used plain japanned steel hooks that can be put on with an ordinary tubular rivet with a nail and a camp axe, and in that form the packsack sleeping bag is now on the market by one of our well-known outfitting firms. I still use my old laced bags; mackinaw for spring and fall, caribou skin for the dead of winter. To add the latter lining is the simplest thing in the world; simply cut buttonholes here and there around the edge of the skin and sew buttons in the bag lining to match, and there you are, a bag for summer with one lining, for spring and fall with the second mackinaw lining added, and for dead of winter with the skin instead of the second lining. The skin is pieced out with double mackinaw where its irregularities come within the standard width of the lining, and it weighs a trifle under four pounds.

Under the general head of packing come fibre and tough veneered wood cases for carrying camping outfits, also the pack baskets so popular in the Adirondacks, and, for permanent camps, a camp chest is worth mention. When you have a lot of truck and are going to stay a while and get there by team, the old camp chest is gotten out and packed with battle-worn duffle, the expressman rung up, and you see it going away among ordi-

nary travellers' trunks, on its way trainwards, while you follow at leisure, not loaded down with unsightly duffle. Arrived at the camp site, the chest is unpacked and made into a cupboard or table, and your stuff is all there, nothing smashed or torn, nor have you had to worry or look after it in any way. It can be checked like a trunk, which a plain box cannot, as it is against the baggage office rules, a fact that means a lot of money saved where a long trip is contemplated.

The strong, light wooden suitcase is in the same class. It makes a fine camp table spread out flat over four stakes, carries a whole collection of breakable and bendable things, and can be checked and shipped about the country over ordinary transportation routes without its owner worrying over ripped and torn handles.

The bibulous party, well and unfavourably known to me as Eddie Breck, author of "The Way of the Woods," is here disclosed completely surrounded by pack baskets. This favourite of the North Woods weighs around seven pounds with a waterproof skin, and has the recommendation that it will carry articles not able to stand rough usage without breaking them, will hold a bushel of stuff, can be locked and shipped check or express, and carries well in the woods with tump strap and

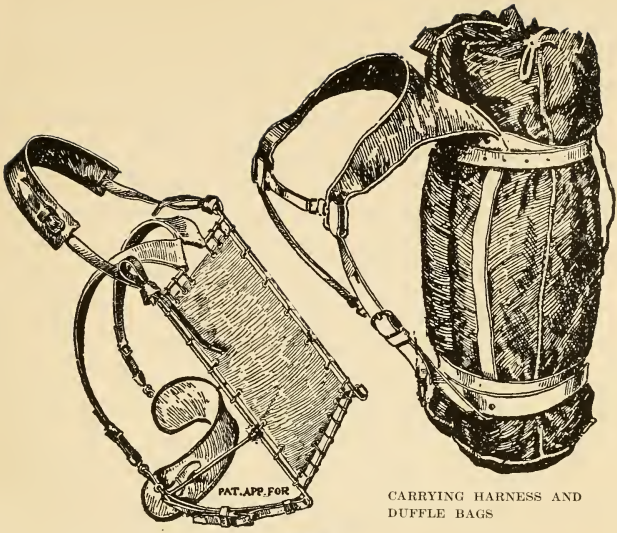
shoulder harness. It combines the stiffness of the frame pack with the carrying capacity of the large pack bundle, and is by no means to be sniffed at by those who live outside of the North Woods, its native home.

In using the plain shoulder harness, described before in this article, to my mind the best duffle bag is the side-opening one whose lips roll tight around a maple stick. I have used two of these bags for years, and they always come along when I have a large party on my hands. One of them, with a simple harness made out of school-book straps and two army haversack shoulder straps, is the pet pack of my eldest boy, who carries it with his summer blanket rig looped around it. Inside are food bags, tackle, personal kit and extra clothing, besides innumerable small articles of use about camp.

As soon as camp is reached this bag is opened up and hung up by its lip rod on two stakes near the cook fire, and in a few minutes it is unpacked and re-filled with all the foodbags of the party. The kitchen is thus handy to the chef in a jiffy. I never yet got anything wet in those bags; water does not easily get around the rod and its wrappings, and it will float with its contents if dropped overboard as well as the end-opening tump bag.

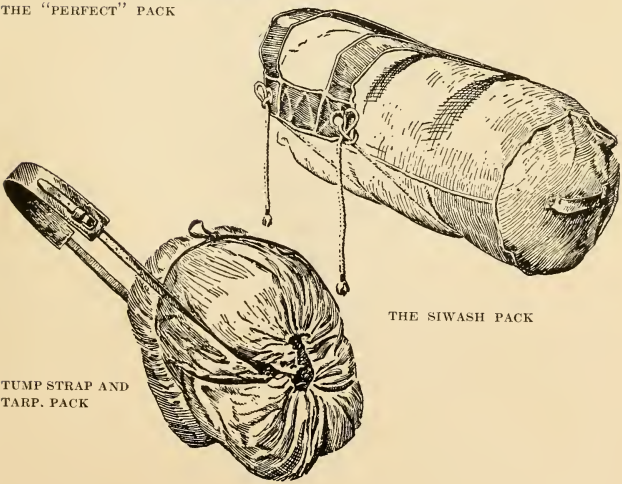
Its original use for campers was as a personal kit bag for extra clothing and the numerous small articles that go for comfort and cleanliness about camp. The nine pockets with which it is lined, and its cubic space of 22 inches long by 9-inch diameter make it a fine camp bureau when hung up on two stakes in the tent near your sleeping bag.

This chapter would seem a little lop-sided without some paragraphs on that great Western division of camp life, horse packing. It is a subject of much interest, in particular for the Eastern sportsman about to take his first trip into the Rockies. Out there the horse is about the only means of transportation, the canoe having but little water suitable for its use. When moving the teepee the Indians of the plains let Mother Earth carry half the load on travois poles, thus doubling what a horse could carry on his back. I have before me a travois net of the Dakotahs or Sioux. It measures 4 feet 6 inches long by 3 feet wide, shaped as an oval, of stout hickory an inch thick and woven with rawhide like a spider web inside. The weaving begins with a long double, maybe sixteen inches long, and crossed at every point with the thongs which radiate to the rim. Four thongs lead out to the rim at each end of the oval and



CARRYING HARNESS AND DUFFLE BAGS

THE "PERFECT" PACK



THE SIWASH PACK

TUMP STRAP AND TARP. PACK

three at each side; four concentric rings of rawhide across all these radial thongs, making a net that will hold 300 pounds of duffle, beginning with the heavy buffalo hide teepee bundle. This load was carried by two long poles of lodgepole pine, whose lower ends dragged over the prairie bunch grass and whose upper ends met in a saddle on the horse's back. An Ojibway dog travois stands beside this horse travois. Two five-foot poles make the dog's carrying device, and to them is lashed a small oval net with hickory rim. A pad of buckskin stuffed with cedar bark goes on the dog's back, and the poles cross through it, besides which he has a belly band also passing through the pad and holding the whole travois on his back. The Indian babies were the most frequent riders in this travois, and many a time, when the dogs scented water or game, was there grand excitement on the prairie as the dogs bolted with their precious human freight!

The packsaddle was used by all the western horse Indians, and differed not greatly from our own except for an immense horn on the front sawbuck to hang up pappoose cradles and small-child bags. The standard western packsaddle has two sawbucks, rawhided or rivetted to wooden plates shaped to fit a horse's back. This constitutes the

so-called "tree" to which the latigo straps, breeching and breast straps, and the two cinches are attached. This tree is the foundation on which you put from 120 to 200 pounds of load, so under it must go a pack blanket, usually hair filled padding. On it go two kyacks, panniers or alforjas, on opposite sides, with stout straps which hook over the cross-trees. The first of these carrying boxes is of fibre; the second is generally constructed of canvas with wood lining so as to in a measure protect the contents, and the alforja is a canvas saddlebag, no less, heavily stitched and leather reinforced and provided with stout leather loops to hang from the horns of the saddle. Which of these pack boxes are taken depends upon the material to be carried; a good outfit should have both panniers and alforjas, the former for canned goods, tinware, etc., and the latter for ordinary duffle that cannot be hurt with the rope pressure. When they are loaded and hung over the trees the sling ropes are next brought into play, the object of them being to not only tie the load together but to take the weight of the panniers off their straps as much as may be: they usually pass around the pannier, up over rear horn, down under the pannier, and end in a loop-knot tied in the part of the rope crossing in front of the pannier. This much

is done as soon as the panniers are hung and before the rest of the pack is made up. The pack then is built up on the pannier tops, usually two duffle bags on top of the panniers on each side, a large central load like a tent in the centre and some uneasy angular load on the cushion thus formed. The sling ropes for the panniers are then slung across the load and tied in the loop on opposite sides. So far so good; a tarp is thrown over the load, and then—in no two parts of the country will you find any one tying the same diamond hitch! We once had a hitch-tying contest, taken part in by eight men, all of whom had packed their own horses in various parts of the West. All tied good hitches, but as no two of them were alike the judge resigned after tying, himself, the worst looking hitch of the lot! I tied the Lone Jack hitch in that contest, and I use two hitches, both of which have served me well in the West, the first being the Lone Jack Hitch described and illustrated in my book, "Camp Craft," and the second is the squaw hitch so much used by lone prospectors and so easy to tie that even the Indians learned it. And I may put in an aside here that the Noble Red Man seems to be a good deal too simple-minded to get the intricacies of any of the diamond hitches into his head, for never on

two successive days have I known them to tie one without getting it scrambled. Here is, then, the squaw hitch: Cinch strap with hook on near side. Go around to far side and throw yourself the loop (or else throw cinch strap over by its rope so hook will come around to you). Come back on near side and pull cinch tight. Shove rest of loop under rope where it crosses pack about the centre of the load. Grab this loop, pull it back over rope and catch it around far pannier. Doing this will send you to the far side, around the critter's stern. While you are there, do a tight job of getting that rope around the off pannier. Come around under horse's neck, holding the running part of the rope, and pass it around front corner of near pannier. End up by bringing it up around rear corner of near pannier. The hitch is now done, but is more or less slack and will work loose if tied, for it has no diamond to take up any slack. Tighten by grabbing the running rope just above the cinch hook and setting up for all you're worth; follow this slack around the pack, tightening the far pannier, and then the near pannier until you have out all the slack that will come. Then tie over central crossing point. This is by no means so good a hitch as the Lone Jack, which is practically the Government single diamond, but it is easily learnt

and remembered. The diagrams hereto ought to make it clear. "Cinch up till he grunts" is the only safe rule with it.

A final trek in western prairie or mountain travel is the lone saddle trip. Here again one studies lightness and also the size of the package, for it is obvious that a bulky parcel like a knapsack cannot be carried on a saddle horse unless you want to give him his reins and hold the pack in your arms like a baby. It cannot go on behind the saddle, for then you cannot throw your leg over in mounting, and it cannot go on your back, as it will be impossible to keep your seat with any comfort, due to the jouncing of the horse's gait. In fact, the only place a packsack can go on a horse is as a central load on a packhorse already packed as to panniers. But, at that, do not leave it back east, for it is a good parcel to carry your duffle in, and will come handy in a hiking trip through the mountains away from the base camp. But, for the lone saddle trip, you are dependent upon saddle bags and what can be gotten into the slicker roll on behind in the cantle thongs. This has a limit of height of about nine inches, and of length of about three feet. However, in that you can get a blanket and a light tent, or, better, a rectangular tarp which can go over your face

and body when sleeping out on the prairie in starry nights, and will make a leanto in rain. A few provisions can be strung out along inside that roll, and maybe an extra sweater for cold nights, but that will be about all. The saddle bags go behind the saddle seat, have a light cinch strap to keep them from flapping up and down at a gallop and in them will go the smaller provisions, aluminum mess kit, ammunition, tackle and small duffle. With these two bags and the slicker roll any old-timer can make himself entirely comfortable on such a trip. My boyhood hunting chum made just such a trip one summer, covering some 1,500 miles by saddle horse alone, from the Indian mesas of eastern New Mexico, across New Mexico and Arizona, up through California to the Mt. Hamilton range near Sacramento, where he finally found so lovely a spot in the mountains that he went and got him a wife, settled down and built him a home there and has lived happily ever after!

It's a fascinating subject, travel in the wild spots of the earth; many of my monthly camps are made solely with this end in view, what hunting or fishing that may turn up being merely a side line.

CHAPTER II

WITH KNAPSACK AND RIFLE

It *sounds* fascinating, that ideal of a foot-loose and free hiking trip through the mountains with rifle or rod and one's complete camping outfit on one's back, and, in a way, it *is* easy. Any one can go light—but to go light, *and right* is one of the arts, requiring the utmost knowledge and study of conditions. Any one can go light—roughing it and enduring hardships—for a short time, say, three days, but how about two weeks or a month of it?

Here are a few of the conditions that must be provided for if the cruise is to be of indefinite duration and to be a pleasurable experience rather than a species of punishment: The weather will change—you will get everything, bitter cold, rain, snow and hot weather; they all occur in almost any two weeks of spring or fall in our climate; your food must be nourishing, palatable and good for your body to assimilate, yet light—that is, your cooking outfit must boil, bake, fry and stew;

your pack must weigh altogether less than thirty pounds, except at the start, where thirty-five for the first few days is permissible; you must have a tent to live in at night, and your sleeping accommodations must be warm, cool, comfortable and not bulky; you must have light at night; provision against sickness and accident; and change of clothing, because of wetness, perspiration, burning up or scorching; all this must go on your back or about your person and be light enough so that carrying it fifteen miles a day in the mountains is no hardship.

Many hands make light work, so that, in a party of four or more, all these matters are so subdivided among the members of the party that almost any modern camping equipment is ample. But suppose the party is but two, or a lone hike? The writer's habits of hitting the trail often at all months of the year have led him to devise a two-man outfit that meets all these conditions and seems worthy of description in some detail for the benefit of others.

I have but two packs: the January pack and the June one. One is used from November to April and the other from May to October. They both weigh about the same when I start out, from thirty to thirty-five pounds, and my own weight

is 130, height five feet eight inches; strong for my weight, but a lightweight, a cold-frog, easily fatigued and quickly susceptible to poorly cooked food. So much for the human equation. To meet the demands for comforts in the wilderness for my wretched body I have been forced to do considerable experimenting, scheming and devising. Yet time and again have I set off into the mountains with one or the other of those packs, taking along a friend, and have spent from five days to a week fishing, hunting or timber-cruising in most enjoyable fashion, with no fatigue and no harrowing hardships. Yet I have had more than my share of stern weather conditions to face.

Almost invariably the friend has showed up with a bulky sleeping-rig weighing not less than fifteen pounds, a duffle-bag, weighing as much more, crammed with his personal effects, no means of carrying it, and no reserve to carry his share of the outfit. If he could carry just his share of the grub alone I would not kick, but as soon as he gets out of the range of porters, autos, teams and canoes he begins to make heavy weather of it, and because of *his* duffle the trips often cost double the intended expense. As a rule the best solution is to fit him up with one of my own outfits and leave his stuff at the house.

To begin with the weather. Most tyros do not seem to realise that, while the weather may be fine and dandy when starting out, it will most likely be mean within two days from the start of the trip, and, as the old guide used to say, "What's the weather got to do with it, anyway!" No one proposes to den up and halt the trip just because the woods are wet or it is drizzling, though I usually make myself comfortable in camp in a hard rainstorm, unless it is only a thunder shower. But the candidates show up with no raincoat, light khaki coat and trousers, no hat that will keep rain out of the neck and off the shoulders, and then expect to duck for shelter at the first sign of storm.

Tied up with this consideration is that of getting through the train trip and city connections without looking like the wild man of Borneo. No one likes to look conspicuous or bizarre in making one's train, yet at most little jumping-off places the facilities for changing city clothes—and disposing of them when changed—are limited, not to say absent. My rig, winter or summer, has boiled down to a grey woollen suit, the coat of which was once of a standard double-breasted city suit, and the trousers are all-wool homespun, rather thin-cut lower down so that they will fold easily inside one's hunting-boots. I long ago

discarded the army breeches; they are no good to sleep in, and the cuffs are a nuisance, particularly if you are wearing larrigans that come not much higher than your shoes. Going to the train I wear the above-described suit with the trousers pulled down *outside* my hunting-boots, sport a linen collar and shirt, a red leather four-in-hand tie presented to me by a cowboy friend, a Stetson hat and a green woven-wool skating vest. Except for the hat, I look about the same as any one else in city duds and attract no particular attention.

I never check the packsack; its straps and buckles are too apt to be ripped off by our baggage-smashing gentry. I once saw it going by on a trunk truck, down the station platform, buried under a mountain of suitcases and trunks, and when it was transferred to the baggage-car the baggage-man just looked at its tag, disregarded the handle by which I always carry it in the city, grabbed one of the straps and yanked the whole pack bodily from under all those trunks! I set my teeth and *hoped* that it would be handed to me at the jumping-off place ready to carry. Luckily it did get through all right, the strap held under that big brute's full strength—but never again! Another thing: no matter how much assured that your pack is or will be on your train

—have you ever gotten off at some lonely shack beside the rails, one of those with one telegraph operator for general factotum, and had the train go on without your baggage being handed out? Next train is next day, and it will be up on that one no doubt, the man assures you as he locks up the station and goes home, leaving you in a fine frame of mind!

No. I have a regular shawl-strap to go around my packsack, and I take the pack right along in Pullman or day-coach, just like any suitcase, and then I *know* it will be there at the jumping-off place! In dead of winter I add a mackinaw coat to the above outfit, but all through the hunting season and the spring trouting the grey double-breasted coat is ample. I never wear it on the trail, the wool vest alone is plenty; coat is good at night or in rain or biting northwest wind. The footgear I wear on all these hiking trips is the high cruiser moccasin. I do not object to the sixteen-inch height, it never binds my legs the way they say it will, and it is much handier in getting through briers and deep bogs than any lower boot. The pair is light, and I always tie the laces in a flat knot over the instep before lacing up higher. Otherwise the tension caused by the calf muscles will steal lacing from over the in-

step, making the boot tight there, or sometimes it is just the other way and the instep steals from the calf, binding the muscles of your leg. A flat knot over the instep obviates both troubles.

On leaving the train I shoulder the pack and hike for the nearest timber. A temporary stop is made here, trousers are tucked into the boots and relaced, the linen is taken off and stowed in a small bag in the pack and my flannel shirt comes out of the latter and is put on, also belt-axe and hunting-knife. Using the same leather necktie, I am ready for the trail. In a hot spell the rig is uncomfortably hot, but at that it is better than the painfully sunburned legs that my friends sport after a hot day, and better than the discomfort of sun on khaki trousers which offer no protection against it. If it comes on to rain I get the "fairy" rubber coat out of the pack and put it on. It weighs nineteen ounces and takes up about as much room in the pack as a pair of socks. It is a very hot coat and in a cold, icy wind or thrown over one at night, is a very acceptable addition to one's clothing. It protects you from rain down to about four inches above the knees. The boots take care of everything below the knees and the remnant I let get wet; the trousers being wool, this is no great hardship. Meanwhile my

friends are shivering in their clammy army khaki breeches, and want to stop and build a fire. Several times I have fished, rowed or cruised right on through a thunder squall that half filled the boat, wearing that little coat and letting the wool trousers get wet around the knees; they dried out without my knowing it later. Wool protects you from cold; it also protects you from heat, which is not so well appreciated, and in an open boat in the hot sunshine I would rather have wool trousers and be warm than khaki and be hot.

This rounds up all the trail clothing, except what to take for a change. One needs, of course, night-socks and bed-slippers for the sleeping-bag, and a wool toque to pull over your head for a night-cap. With head and feet comfortable you can sleep soundly even if the bed is hard; without them cared for, no bed will bring sleep. I confess also to a little down pillow a foot square that always gets into my pack. Almost any mountain of browse, boots, socks and extra clothes will answer for the basis of a pillow, but it is apt to be uncomfortable on one's face and ears unless topped off by the little pillow aforesaid.

For the rest of the change, one more pair of socks and a pair of wool underdrawers is sufficient for a week's trip. Any catastrophe that

involves wetting you to your undershirt calls for a general drying-out fire. But wet pants and underdrawers are the natural concomitant of almost any day in the woods, and if the former are wool they will dry on you without discomfort if you can pull on a dry pair of underdrawers and dry socks underneath after the tent is pitched and all the chores are done.

So much for the clothes on the backpack cruise. You will note that most of them are worn on you from the start, saving much bulk and weight in the pack to be carried to the jumping-off place. Now, about sleeping outfit: I use my own design of packsack sleeping-bag, in which the pack is the upper surface of the sleeping-bag laced up along its sides to make a pack 28 inches square with a 20-inch flap. When unlaced and straightened out this pack makes a covering six feet four inches long, and, as its lining of wool batting and Mackinaw is 34 inches wide, you have considerable flap to hold in on each side. The bottom piece is a long, seven-foot by 30-inch mattress filled with wool batting, its underside being of waterproof canvas so that it can be thrown right down on damp or snowy browse. This wool lining was originally about a quarter inch thick, being intended to put down on a pile of browse, but as

picking any quantity of the latter was a nuisance, I first tried a stick bed, which was an improvement, but weighed three pounds, so I finally added enough wool batting to make my under mattress an inch thick. As the wool is very light, it only made the mattress weigh a pound more; the original weight was three pounds—adding the wool to make it thicker brought it up to four pounds, which was better than carrying even a three-pound stick bed additional. This makes a good bed, for, unless the ground underneath the tent is *all* rocks, it is plenty comfortable enough with a hollow scooped for hips and shoulders and a few leaves or pine needles thrown in to take off the rough edges, so to speak. The cover or packsack, I might add, weighs four pounds in single mackinaw wool lining and waterproof backing for the June pack, warm down to about 36°; four and a half pounds in caribou skin for the January pack, warm down to zero.

The total weight of the sleeping outfit is then about eight pounds; a good wool quilt or fur bag will weigh the same and can be stowed in a duffle-bag and carried in a harness, so I do not claim anything very much for my scheme but compactness. A wool quilt bag, six feet by thirty inches by twenty-two inches, at the foot, can be made

TUMP STRAP AND CARRYING HARNESS

HITTING THE TRAIL WITH A 30-POUND PACK

TARPAULIN A-TENT WITH CHEESECLOTH ENDS

up by any one who can run a sewing-machine, buying light, fine-woven material like sateen or galatea and laying out the wool bats between the sheets, quilting them and then sewing the two quilts together all around except two feet left open for a flap. Such a bag will weigh about five pounds and will be warm and comfortable for cold-weather camping (which is the cream of it, if you will believe me!). This bag and your tent could go in an eight-inch tump-bag, with cook-kit, provisions and other duffle in a similar bag, and with a leather harness to carry them side by side, you would have a light trail outfit quite as good as the one I am describing. Only, limit the weight of your sleeping outfit sternly to eight pounds, for there is no fun in breaking your back with a heavy load.

Now for a tent. I would set its limit at three pounds, and its capacity two men, or three at a pinch. A light A-tent, Forester, Hudson's Bay or Blizzard is a good one for two. For three I have lately devised one that I call, with becoming modesty, "the Perfect Shelter Tent." It was born of the following considerations: If you want a perfect sleep you must get all the forest air into your lungs that the law allows, yet keep out of draughts. Just try the difference between that

drowsy, stuffy feeling with which you awaken in a closed tent with airtight and watertight walls and the springy, elastic, exhilarating feeling that you experience when arising from a night slept in the open—*such* a sleep!—and you will grab after that sensation thereafter as one of the desirables of the trip. Many experienced campers, mailmen, timber-cruisers and woodsmen that I know scorn a tent except as a shelter to keep off dew and rain, and their caterpillar-like forms are apt to be stumbled on in almost any hollow in the leaves about camp after retiring hours, each in his fur or wool sleeping-bag, just as close to nature as he can get.

I approve of all this—except for the wind! Many a night have I slept in the vicinity of Abercrombie, whose thunderous snores filled the atmosphere as he slept the sleep of the truly just with nothing over him but a tarp stretched between four stakes, and the icy blasts caressing the outside of his sleeping-bag! I admire that—all but the draughts, but I prefer the comfort of having a den sheltered from the wind, where the fire heat can form a hiatus of good cheer and one can spread one's sleeping-bag therein upon retiring and breathe the mountain air—minus those breezes which make it too much of a good thing!

And so I was led to devise the Perfect Shelter Tent. You ask three things of a shelter tent: protection from rain, wind and insects. The roof of this one was made of two pieces of waterproof army shelter clothing, thirty-three inches wide and eight feet three inches long. This was sewed up and hemmed top and bottom, giving a sheet five feet four inches wide by eight feet three inches long, weighing three pounds—and it would hold water in bags! Grommets were put in along the front and back and two of them a foot up from the back. Deducting this foot, you have seven feet three inches for the slope, which, for a rise of four feet six inches at the front, would give a horizontal floor line of six feet three inches. Now, four feet six inches is just the width of fine-mesh mosquito netting, or you can get it in scrim or hospital gauze (which keeps out punkies) by sewing up one and one-half widths of the latter. I chose the mosquito stuff, because one does not often have punkies trying to break in after sundown, while mosquitoes are indefatigable. Two pieces were cut out of the bolt of four-foot six-inch mosquito cloth (which cost 25 cents). They were one foot high at the back, four feet six inches at the front, six feet three inches long, and the full width was continued to make half the front of the

tent, or two feet eight inches more. These pieces were sewed under the side hem of the roof and edged along the bottom with double grey tape to give the mosquito-blind strength and to have something to which to fasten tie tapes.

Then the tent was set up. Two two-foot stakes were cut and driven in for the back of the tent, the bottom grommets tied to them and the ones a foot up the back were tied above them on the same stakes. Two front stakes five feet high were cut and put in six feet three inches from the rear stakes, tying the bottom ties of the mosquito-blind to their feet and the front grommets of the roof up as high as they would go—four feet six inches. These front stakes were then guyed out, bringing the tent roof nice and taut, the side pegs were driven and tied and the tent was up. We had, in effect, a sheltering, rainproof roof, and all the sides and front of mosquito-blind. An airy, comfortable tent, not draughty, for the netting killed that, and *such* a sleep as you pulled off in that tent! For an ordinary rain in the woods it worked all right and rode out several thunder-storms, for the rain simply rolled down the out-side of the netting, but for a driving rain or a gale of wind it needed a light side-piece. This was made of brown galatea, weighing altogether six

ounces, and it was provided with snap buttons at every six inches, male half on the side-piece and females on the tent, under the edges. This side-piece could go on either side that the wind happened to be coming from. Finally we added a verandah cloth across the front of the tent, bringing the total weight up to three pounds twelve ounces, and this tent was out with me four times that fall, sleeping two men and a husky boy in plenty of comfort, and it had rain, storm, gale and sharp, cold weather to try it out. The snap buttons you can get at any notion counter in a dry-goods store and sew on yourself wherever needed. We used six more of them to snap up the front edges of the mosquito-blind, but generally it was closed by simply pinning the bottom flat with a rock.

Coming now to cooking and provisions, I was some time getting together an ideal outfit for one man or two men and a boy. Each carried knife, folk, aluminum nine-inch plate and cup in his pack as part of his personal outfit. That left the cooking outfit, for boiling, baking and frying for three, up to me. In order to lighten the pack on your back as much as possible it is well to subdivide wherever feasible, putting axe and knife on your belt and hanging the cook-kit by its own strap

if possible. So the first acquisition was a 25-cent tin kidney-shaped beer-growler, holding three quarts, which I spied in a city department store. This article was originally intended for the nefarious purpose of rushing the can of a Sunday morn,—you know—under your coat, hooked to your suspenders. Not even a city cop could be expected to look unconcerned if you appeared out of the speak-easy door brazenly carrying a three-quart pail of beer; but the Lord's day takes no particular count of thirst, and so the kidney-shaped growler had to be invented to keep Satan out of mischief. Along comes the Forester in the shape of yours truly. He knows nothing of beer and its ways, but he *does* know mulligan, and here is just the container for it! All it wants is a canvas bucket to go in, with a strap rivetted to the bucket and you have a big part of your kit nicely tucked away under your arm and in no way interfering with the pack-straps or with woods-going. So I sewed up a kidney-shaped pail of brown watertight canvas, such as all camp buckets are made of, to fit over the growler, rivetted on a school strap with buckle to adjust the height and there you were!—three quarts of mulligan or boiled spuds or rice or soup for three hungry men, and a camp water-pail to boot! In this

beer growler went all the smaller provision bags, coffee, tea, salt, baking-powder, beef capsules, cocoa, cornmeal, dried soup powders—in all about three pounds of grub and container.

The second accessory to this kit was the Stopple cook-kit. It is too well known to need much description here. It provides a quart container for boiling coffee, tea and cocoa, a wire grate for all sorts of fire duties, obviating entirely any pole or dingle-stick; two fry-pans of the right size and shape to fry fish or pop corn, and two big pint cups to boil fruits and to have a man's-sized drink of coffee. It carried all the accessory forks, spoons, mop-sticks and the like, and went in the other fellow's pack, weight two pounds.

Third article, the aluminum baker. No, this is not the well-known reflector baker; the smallest made is far too large for a trip of this kind. I discovered this one in a sporting-goods store, an aluminum pan with flat cover and folding handle which snapped over the cover to hold it on. It is nine inches long by six inches wide and 1½ inches deep, nicely dished and intended by its makers, I believe, for a fry-pan. A worse one would be hard to conceive, for the aluminum handle would be too hot to hold and too heavy to let go of without tipping the pan over. But as a

baker it would be a star. Aluminum has three times the conductivity of steel. It will not scorch things because the heat is not localised, but spread all over the surface of the metal from the point of reception from the flame. In that baker I can make a cornbread cake that will melt in your mouth and be all in size that two men can gorge. Or, I can set a squaw bread dough in it and turn out a fine, well-risen biscuit that goes mighty fine for breakfast. Grease both interior and inside cover of pan, fill half full of dough or batter, set on grate over a bed of coals, and build a flourishing fire on the cover. In ten minutes open her up and take a peek—golden brown underneath—needs a bit more browning on top—flip her over on grate and bake upside down for five minutes more and then set pan aside until wanted. Out of it will hop one fine cake—no less!

Fourth article; a nine-inch frying-pan with folding handle—for flapjacks. You can make them in the Stopple pans, but they are usually busy with fish, eggs, bacon or pork cubes, and you want another pan for the flaps. Then, a deep 7-inch tin mixing pan for batters and doughs; three shallow dishes for soups and mulligans; three flat pie plates to cover these, and the cook kit is censused.

Here is my grub-list for a man and a boy (eats

more than the man) for four days in the mountains: 1 lb. bacon, 1 lb. salt pork, 1 lb. rice, ½ lb. butter, ½ lb. lard, ¼ lb. coffee, 1 small can evaporated cream, 1 box beef capsules, 1 lb. self-rising buckwheat flour, 2 lbs. flour, 1 lb. corn meal, 1 lb. sugar, 2 oz. baking powder, 2 oz. tea, 2 oz. salt, 1 doz. eggs, 1 lb. prunes, 1 lb. dates, 1 lb. apricots, 1 lb. cheese, 1 lb. smoked beef, 4 potatoes, 4 onions; total, 18 lbs. Enough to live well, even if we caught no fish; but, with the Kid along, this is impossible; he caught all we could eat, fine black bass. On the next trip, where we had another man along, we added one-third to all of the above and came out fine, though the sole fresh meat shot or caught happened to be three unlucky blackbirds, which fell to a shot from the Kid's 28 ga. single shotgun.

Our breakfast menus were: coffee, flapjacks, bacon, omelette, and stewed fruits left over from the night before, usually fish besides, all we could eat, caught before breakfast that morning. For lunches we usually had a feed of dates (nearly equal to meat in protein), cheese, smoked beef, and, if a fire was built, cocoa and squaw bread. The Kid was adept at that; it was his specialty, and he generally made one at the breakfast fire and set it aside for the midday lunch.

It never pays to fill up your stomach in the woods during the midday stop. The Indian's way of two meals every sun is plenty and after a few days in the open you do not care for more. I often take along Ry-Crisp Swedish whole-wheat bread for lunches. It is delicious when toasted and very sustaining. It comes in flat crackers 12 inches in diameter and will keep fresh indefinitely. Squaw bread is simply biscuit dough flattened out and baked in the frypan, tipping up for browning on top as soon as the bottom is firm and crusted. A cup of flour, a heaping teaspoonful of baking powder, a lump of lard as big as your thumb worked into the flour, add just enough milk water from a cup into which a bit of evaporated cow has been poured, a pinch of salt, and you mix up a dough with your spoon, keeping your hands away. Bake at once.

The big meal of the day is, of course, at nightfall, when the day's hunting or fishing is done. For the first day I usually bring along a pound of steak to tide over the gap before the rods or guns get to work. The Stopple grate is set up and a fire started with the quart container in its bracket in the grate and the three-quart growler on the grate; in fact, I also stand the Stopple container there too, in the curve of the growler,

to get the heat better. An onion, two potatoes, some rice, some chunks of meat, and a big pinch of celery salt are started in the growler for a mulligan, and rice is put in the container, a small grab to each man to a quart of water. This under way, I mix my batter for the corn bread; one cup flour, one-half cup corn meal, two heaping teaspoonfuls baking powder, ditto sugar, one-half teaspoonful salt; mix all thoroughly in pan and add a beaten egg and enough milk water to just make it pour slowly. Add finally a thumb of butter, melted; stir vigorously and pour into greased baker. On the grate with it; pick out all flaming brands and put them on cover; add more sticks until you have a bright fire on top; maintain a bright bed of coals under the grate, and in ten minutes the cake will be ready to look at. If coming along nicely and under side brown, capsize on grate and leave five minutes more. Set aside in its pan until ready to serve. The two Stopple pint cups are filled with water and set on the grate. In one goes mixed prunes and apricots, with a liberal dose of sugar, and it is allowed to stew; the other is set off as soon as it comes to a boil and a pinch of tea for each man steeped in it. A beef capsule to each man is next stirred into the mulligan and grub is then served—mul-

ligan, steak or fish, rice, corn bread, tea, and fruit for dessert. You'll never have intestinal troubles with that grub!

How do I carry it? Well, enter here three friction-top tins that used to hold carbide, the pound size. Cleaned and scalded, they are ready for butter, lard or suet, and bacon. The expeditionary pork goes in another 3 x 5-inch friction tin, and fourteen fresh eggs are broken into another, where they carry very well, considering. I have resurrected whole yolks out of that can after four days of trail. Most of this shaken-up egg is fine for one-man omelettes. Beat to a frazzle, add a drip or two from the cow can, and then into the hot greased frypan with the liquid. Let stand a few minutes, until brown underneath, flop over and serve. The secret of having them fluffy is plenty of beating. Vary by breaking in little strips of shredded smoked beef. For a somewhat longer camp I take along an Arcadia tin which holds a pound of codfish meat—wonderfully acceptable after a diet of fresh meat and fish. Another variant is rice and pork cubes. Dice the pork, boil in frypan for ten minutes, pour off water and fry lightly; tip the whole works into the rice pail and serve. Great eats!

After cookie resumes his pipe and partner

washes up, it is time to break out the carbides and look to the sleepin's. There is no use talking half the evening and then turning in on a bed of rocks and stubs. These are all taken out of the tent after supper, hollows dug for hips and shoulders, the floor tarp spread, or, if none, leaves and browse strewn down to cover the indecent nakedness of the soil.

I might put in here a postscript about the Kid's axe. It seems to have been an ice axe at one time in its history. It has a cutting edge and pick point and it's the handiest ever in a rocky country, where tent-stakes are always running into unsympathetic rocks somewhere down in the bowels of the earth. The axe was a great clear-the-way with its pick point, and it weighed but one pound. As the Kid's job was tent-stakes, light firewood and the like, this axe filled the specifications for him. Speaking of firewood, once you have tried trash wood, like pine, cedar and spruce, against hardwood like blackjack, chestnut oak and white oak, hickory and maple, you will say hard things to the man who dares approach your cook-fire with an armful of trash. It is all the difference between a meal that takes over an hour to prepare and one that is ready in thirty-five minutes. I've seen the same pots that refused to boil over a whole

bed of pine coals, boil like Sam Hill over a few embers of blackjack, and when the pots are cold on the grate and you want to see some bubbles right smart quick, break up a twig fire of dry oak or blackjack and see how soon the steam begins to shoot out from under the lids!

These hiking trips have been approaching standardisation with me during the last four years. At first they *would* run into weight, and you staggered under a load in spite of your best planning. With the equipments as they stand now I can count on picking up a pack that will not go over thirty-two pounds when I start out, and the Kid finds that twenty-five pounds is about right for him. As for the Littlest Boy, his pack weighs just six pounds and includes his raincoat, sleeping bag, toilet kit and some tackle, and it all goes in an old cartridge bag, costing a dollar, whose straps have been rearranged to make a shoulder harness. We never think of leaving *him* behind on our summer camps!

CHAPTER III

A LONE HIKE FOR BASS

For several years there has simmered in the back of my mind a project for an ideal one-man hiking outfit, with the maximum comfort on the minimum weight. Something that would be independent of rain, browse, the other fellow, or any combination of the usual wilderness conditions. Needless to say that this ideal was some time in getting tried out, for my fatal ability as a cook has kept me in great demand on camping expeditions. Cooks are the bane of American existence—I may say, proudly enough, that *we* cooks are the élite of society, the most recherché and sought after of all human beings! And so it comes to pass that, of all my twelve monthly camps during all the years, I have not had *one* when I was not the cook and dishwasher for a crowd, which crowd usually did all the fishing or hunting and came back to dub me a "good fellow" when it came to the eats.

But, ah, no!—at last I ran into a kindred spirit

who would have none of my cooking, Dwight Franklin by name. This Dwight is an outdoor bug of the deepest dye; lives on three nuts and a prune for dinner and a tablespoonful of rockahominy for supper; a bug chaser and a scientist, forsooth; well and unsavourably known to the Museum of Natural History. This defendant appeared before me and demanded a bass trip into the mountains of Pennsylvania, and, when several deft questions elicited the information that each was to do his own grubbing, I flung my strong motherly arms around him and hurled him gratefully into the bosom of the *Field and Stream* family.

And so I went home to plan an old-master one-man outfit. The idea which had been long simmering was a combination of stretcher bed and tent, similar to the manufactured articles of that nature, only I proposed to cut my frame work in the forest. All you needed was two of those long, skinny maples, about 2½ inches at the butt and 20 feet high, that grow in every thicket. Two 6-foot lengths from the butts of these would form the stout sides to my stretcher bed, and the rest would cut to two pair of shears forming the legs of the bed and the frame of the tent. A rope, run from the ground up over the two pairs of

THE "PERFECT" SHELTER TENT

PACKSACK-SLEEPING BAG, MADE UP AS A BAG

shears and down to a convenient bush or peg, would make this whole frame secure, and over the rope would be thrown your tent tarp. Lashing the bed side poles to these shears about a foot above the ground would then give you a comfortable bench to sit on and a fine bed at night. How much would the combination weigh? I used two yards of 33-inch olive drab Army shelterclothing, weighing 7 ounces to the yard for the stretcher bed, and the tarp was a piece of Tatelec-treated cloth, 8 ft. by 6 ft., weighing 1½ pounds, so the weight of my outfit was a shade under 2½ pounds.

At first I thought of putting ends to the tarp and a screen of scrim mosquito netting clear around the front joining the sides, but abandoned the idea after some thought, as it would only be in the way, confine one to a fixed shape for the tent, and be hard to put up. So I ended the tent work with just a row of grommets across each end, 24 feet of cotton rope for the ridge, and some strong twine for tying out the front verandah to any angle you wanted it. As to the stretcher bed, all of them as manufactured are too wide and too heavy, and they bag abominably because of the superfluous width. On the Atlantic liners the berths are just 22 inches wide, and they sleep fat men and thin men alike. On the *Go-Sum,* my

power cruiser, the berths are 28 inches at the head and 20 inches at the foot. So I folded the 33-inch goods in six inches on a side, and sewed with a double seam for strength, leaving the bed 21 inches wide and having plenty of size to the two side pockets, through which the poles were to go. At the head end I tapered the canvas to a point and put in a grommet, the idea being not only to save weight but to provide a hammock-like tie up to the guy rope, and very comfortably did my little down pillow fit up in this peak, raising my head just high enough, instead of letting it down to the level of the rest of the sag of the bed.

Now for bedding I should have preferred with this a light wool-and-sateen sleeping-bag weighing three pounds. This is easily and cheaply made by getting eight yards of brown sateen 28 inches wide and making of it four two-yard pieces, 28 inches wide at the head and 20 inches at the foot. Between each pair of pieces you are to shingle wool bats, seven to the pair, hem all around and quilt with diagonal cross seams. Then sew the two pieces together all around, turn inside out and you have your bag ready for use. The cost of this bag is about $3.60, and it is warm down to freezing.

However, though I made a bag like it for my wife several years ago, I did not have the time now to make a man's-sized one for myself, but took instead my summer-weight packsack sleeping-bag, weighing with mattress 7½ pounds.

The cook kit came next. First, the good old beer growler, a three-quart tin kidney-shaped pail carried under your arm in a canvas pail made to just slip over it and having a strap to go over your shoulders. For all trips of one to three people this is my long suit for mulligans, boils, soups, etc. In this went a pound of steak, a half pound of bacon, and a half pound of pork; also a lard can (Arcadia tin) with eggs packed in the lard, a small baking-powder can of the ¼-pound size, and the emergency match can.

Next, I needed my little aluminum baker, without which I would not be happy. Same is aluminum, 9 by 6 inches by 1½ inches deep, with a cover and folding handle which keeps the cover on —a miniature Dutch oven and the best little baker in the world. In it went the small bags, coffee, tea, salt, and a couple of candles. Then I wanted my 9-inch steel fry-pan with folding handle, the deep aluminum plate to match, two small mixing tins, 7 by 2 inches, and my enamelware blue cup

with the thong and stick for fastening to your belt, and my outfit of utensils was complete.

Followed then the miscellany: a bag holding the Stopple wire grate and some spoons, a folding candle lantern, my camp axe, hunting knife, vest-pocket camera, night socks, night cap, rain coat, camp mocs, brown sateen pillow, bait casting reel and a leather bag of lures, and the pack was ready to lace up and take the train.

For clothing I wore wool outing shirt, khaki riding breeches, socks and cruiser moccasins, felt hat, grey wool coat, and leather necktie.

On the 9.15 train of the Erie, I met Dwight, and with him was Nicky of the Portly Waistline. Him we should have taken out and hanged, ever so gently and tenderly, on the nearest rafter of the Erie trainshed (than which there is no worse fate), but we let him live, to our great subsequent delight, for Nicky was a whole sketch in himself. He knew nothing of camping and less of cooking, being just from Plattsburg, and he had with him the usual swatty's equipment, Army dope from tip to toe, including a canteen in a country teeming with springs and brooks. There was fifty pounds of Nicky, measured in duffle, also, extra, four or five loaves of bread, a pie, and three pounds of steak, in paper packages not otherwise

attached. But Nicky had a belly, a goodly round paunch with fat capon lined; not at all an atrophied first cousin to a vermiform appendix, of half-pint capacity, like mine and Dwight's. So we let him live, to plough through the pie from side to side while the scenery flew by.

At Lackawaxen Nicky recalled that he had neither knife, fork nor spoon to eat withal, and so all but lost the train connection while frantically romping around the rural environs of Lackawaxen looking for them. However, with the pie stowed, we finally tumbled out alongside the rails at Shiner's Rock Cut and hit the trail four miles up Perry's Mountain for Tink Pond of beloved memories. Nicky shed pools of perspiration, and arrived at the last lap near the top on all fours with his tongue hanging out a foot, but the old Plattsburg second wind came to his rescue in time and away we went through the brush for Tink. It was raining cats and dogs, but that troubled us not, for our shirts and their breeches were of electrically waterproofed wool and it never penetrated. The electric current acts by osmosis, not to put the waterproofing *between* the fibres as in ordinary dip solutions, but right *into* the fibres. Consider what happens when a drop of water falls on cloth. The fibres take it up and become wet. When they are

full the interstices take up water and also become wet, and then the water communicates itself to the undergarments and a capillary action is set up by which every drop is passed on in to wet still more cloth. With the fibres themselves waterproofed this does not happen, nor do you get the closeness of rubber where the interstices are filled with rubber and there is no porosity to pass off sweat. With electro-waterproofed fibre the raindrop is simply rejected—it stays outside like dew on grass and falls harmlessly to the ground. We had further proof of all this when we plunged into thick ferns and undergrowth going down to the camp site on the lake. Here in less than two minutes my khaki breeches were soaking wet; another minute and I was wet through to the thighs while every step added more water until I felt like wading through a stream. Neither Nicky nor Dwight was wet at all; just a film of water on the outside of their breeches, as severe a test as I ever heard of. The same was true of the shirts; the only spot where mine was wet was where the pack kept pounding against my shoulders and here the rain had been forced through the weave.

Arrived at the camp the fun began. I cut my poles as per schedule and in fifteen minutes had

my stretcher bed up, the tarp stretched out, the pack set on the bed in out of the rain, and had changed into dry socks and a pair of nice warm electro-waterproof riding breeches which Nicky lent me from his pack to replace my soaking wet khaki ones. Then I borrowed a boat and we set out in the rain to cast Tink. It seemed strange to be casting and catching bass in a driving rain, clad in nothing but wool outing shirt and riding breeches and yet not getting wet, but I took two bass and a pickerel on the new Shannon red fly with twin spinner and pork rind minnow in that rain. This lure is the old red Bing fly, minus the swivel and spinner, but quite as effective, and was a new one to the bass of Tink, for they struck savagely at it and I had great fun until Dwight got hold of my rod, and, with his first swipe cast off the Shannon into the far middle distance of the broad bosom of old Tink, where it sank never to rise again. However, we had plenty to eat for breakfast, and so back to camp. It was now dark and each man to his grub pile. It was still pouring. I set up my little Stopple grate, split up a lot of dead blackjack oak and made a hatful of dead white pine shavings. Then two potatoes diced and put into the growler; some prunes in the deep dish; and a part of the steak in the fry

pan and I was ready for supper. The fire flared up, and, as I sat comfortably on the berth, things began to simmer and hum.

Meanwhile Dwight and Nicky pulled off a sketch. Both are fussy; Nicky good-humoured but obstinate, Dwight as sot in his ways as any old crab of the woods. They had a tarp 10x13 feet and the ground sloped sharply down to the lake. If they set it up fronting the lake both would roll out sideways; if they set it up endwise to the lake one would have to sleep with his head close to the other's feet; if side by side the tarp would not be wide enough yet permit some of it underneath for a ground cloth. And so the argument went on and on, while the Old Scout hehawed up his sleeve. What a cinch not to have to cook for anybody! Presently my spuds were ready to cream and I set them off and put on a dish for tea water, while the community tarp still remained a shapeless thing on the ground, the rain came down endlessly, and the argument ditto.

A pinch of tea leaves; some evaporated cream and a bit of butter in the spuds, and I set out my supper on the stretcher bed while the candle lantern swung overhead. Steak, tea, creamed potatoes, stewed prunes—not bad for a retiring meal! Finally their tarp was up and Dwight proceeded

THE STRETCHER BED TENT WITH MOSQUITO BAR CANOPY

THE SAME, SHOWING STRETCHER BED AND POLE FRAME

to build a fire in the rain. Nicky came shamelessly over to my fire with a steak on a forked stick, singed it a little and then flew at it with a growling noise redolent of primeval savagery, alternating an occasional bite at his rye bread with another worry at the steak. Dwight eventually got a fire going and burnt up some perfectly good patent soup. The Old Scout made up his packsack into its sleeping bag shape and turned in.

Bliss! Never have I slept more comfortably. With the wrangle of how to arrange the sleeping rigs slowly growing fainter and fainter in my ears, I drifted away, to dream of bass, and when I awoke it was grey dawn and—cold! This was ridiculous, merely a cold night in June, certainly not below 40 degrees, and that bag is good down to freezing. I recalled the complaint that stretcher beds were cold, but with a wool mattress underneath nearly an inch thick it hardly seemed that I would be bothered from that source. Yet such it was, for my body soon told me so. I wanted to turn over, and, feeling my under side, was surprised to find the mattress cold to the hand while the top side was warm and woolly. This deponent is no man to endure discomfort if it can be remedied, and in a few minutes I had slipped on my hunting boots and went out looking for a young

white pine. Three husky branches off one of these supplied plenty of browse to fill the bottom of the stretcher bed an inch thick, and on this went back the sleeping bag and I turned in again. Fine! I could feel that side warming up right away, and presently was asleep again. When I next awoke the sun had been shining for hours and Nicky had snitched the boat and was off somewhere casting.

I made me a beautiful corn bread cake in the baker, fried a bass, boiled some coffee in the growler and sliced up another spud to fry in the left-over bacon grease. A fine, wholesome breakfast, with no patent preservatives attached.

Nicky got back, having almost caught a bass, and they set to work to make a regular camp. Dwight is an experienced hiker, and Nick has the Plattsburg dope down fine, so they soon had two rock fireplaces built and had each arranged their respective ends of the tarp into a well-ordered camp. Dwight's idea of each man being independent now showed out its true excellence. Instead of all hands being tied down to any special régime and all having to be present at meal time, each could choose his own time to eat and play. We ate when we chose, fished when we chose, or fussed about camp at will. For Tink bass fishing, the

best scheme is to get out at dawn, with just a cup of coffee and a bit of cold corn bread inside, and make about two complete turns of the lake shore. By that time you will have gotten your bass for breakfast and they will have stopped biting for it will be nine o'clock and the sun high in the heavens. Then get a regular breakfast; bake biscuits or cake at your leisure and make a good meal of it, like the French dejeunér, served about half past ten or eleven. Then wash up, slick up the camp, sun the bedding, loaf around and smoke, go on a hike or do anything your fancy dictates until about four. Then make a big mulligan of steak chunks, rice, a potato, an onion, some macaroni, and let her cook for an hour. This, with a stew of prunes and apricots, a dish of tea, and some warmed-up corn bread, the half left from your baker in the morning (for it takes two men to get away with a whole batch in the baker) and you are fed full, dishes washed and a pipe smoked before six. By that time the sun and wind are going down and conditions are right for fishing again. You put out in the boat and cast the lily pads over the placid waters, glowing like burnished gold in the setting sun. Then comes the sunset, the wonderful June afterglow, with rose and purple reflections on the waters and splashes

of rising bass and pickerel along the dark cattails—oh, boy! but that's the cream of bass fishing! Then home, and to bed by candle light. This is the schedule I prefer, and as I had no one but myself to cook for and there was no three-meal-a-day man to cater to, life was sweet and easeful.

Nicky preferred to swim in the lake most of the day, after which he would come out and squat in his end of their tent, cooking "in the altogether," as the French say, and he ate when the fire would let him, which was any old time, as he was too lazy to rustle much wood. Dwight's pet pastime was fussing with this, that and the other detail of camp outfit; everything he had was more or less stunty, each a patent contrivance, as cute as a wooden nutmeg and mostly devised out of his own fertile brain.

One thing he learnt from me, and that is that a few good wholesome staples, plus a little knowledge of bread making and general cookery, are lighter and better in the end than a whole kit full of add-hot-water-and-serve prepared foods. His outfit with a week's grub weighed 26 pounds; mine 32 pounds. For staples I carried 1½ pounds of flour, ¾ pound of rice, ½ pound of macaroni, a quart of potatoes "as is," three onions, ½ pound of prunes, ½ pound of apricots, 2 pounds sugar,

½ pound dried codfish, ¾ pound corn meal, four eggs, ¼ pound lard, a can of evaporated cream, ⅛ pound butter, and the meats, coffee, tea, salt, etc., mentioned before. I had enough for a week, and with the fish that are to be had from Tink could make it last ten days.

As to mosquitoes, the way I solved it for this outfit was simply a square of mosquito netting 60 inches on a side. This was secured to a string in the middle and hoisted over my head by said string, run over the ridge rope and belayed when comfortably high enough. To keep it from sagging in too close to my face I made a ring of willow withe and tied it in a foot below the central tie of the mosquito bar. This outfit was light and efficient; it had plenty of drapery to fall well out over your shoulders and was not in the way of the fire, as a scrim front sewed in would be.

Since using this one-man hiking outfit, I have added a detachable piece of end tenting to secure with snap buttons on the end of the tent on which the wind is blowing. The outfit seems ideal for a single elderly woodsman who wants his comforts and does not want to make a pack mule of himself on the trail.

CHAPTER IV

CANOE VOYAGEURING

Of all forms of outdoor travel the most pleasurable and the easiest to tackle for the tyro is canoe voyageuring. Back-packing requires a high degree of organisation, of making the wilderness supply one's comforts, of carrying the essentials and them only. Horse packing requires a considerable knowledge of horsemanship, even for the beginner, and a good deal of fatiguing training of special muscles. Dog and sledge require even more experience and specialisation. But for the outdoorsman who has passed the first novitiate of learning plain camping and camp cookery, who has practised with rod and gun until he can depend on himself to bring home the meat in a gamey country, the first spreading of his wings, so to speak, will be in a canoe. Constant and delightful change of scenery; continuous mild excitement; never-ending incident of the watery trail; new adventures hourly with fish, fur or feather,—these will be his on a minimum of fatigue and with the fewest chances of making irreparable mistakes.

To wield the paddle, now on this side and now on that, hour after hour, while the canoe rushes down a swift river, with bends, turns, down trees, rock and rapids in unending succession, while at each bend the bow man lays down paddle to pick up shotgun on the *qui vive* for game; to pitch your nightly camp on some likely spot overlooking the rushing river, tired yet comfortably tired, not fatigued to the point of exasperation; to have the senses delighted by vista after vista of shimmering waters, overhung with giant forest growth throughout the day's paddle; to float with idle stroke on placid lakes, with every distant island, every promontory of the shore line, every mountain of the encircling hills a picture for the eye; to back-paddle, push and veer with gasping excitement as you rush downstream, ever downstream, through the white waters; to cut and scheme your way through tangles of treetops and alders in some bend where a huge monarch has fallen athwart your path—all these are in the day's run on any canoe trip, down any wild stream worth canoeing. And, to them are added the constant glimpses of wild life, as birds cross the stream overhead, wild ducks rise from the pools ahead of you, herons fly off from some backwater pond, squirrels scold at you from the forest depths,

the shy deer vanish from their feeding or drinking at the water's edge, and telltale tracks of mink and 'coon tell you who are your nocturnal neighbours along the stream side.

This chapter will endeavour to make smooth the canoeist's voyage, written out of reminiscences of many hundred miles of such canoeing, both on inland lakes and rivers, and down salt water estuaries under sail in the decked sailing canoes that take the place of the open canoe in rough waters.

To begin with the selection and management of a canoe. Some prefer the 16- or 17-foot because of its greater ease of turning and handling in tight places; others swear by the 18-foot because of its lesser draught for the same load and its greater speed on the same paddle power. Some like the inch keel, owing to the greater staunchness that it gives to the canoe frame and the protection to the bottom that it affords from scraping rocks and sunken tree trunks; others prefer the keelless, because of its lesser draught and the ease of turning and handling such a canoe; while still others compromise on a flat maple strip for a keel, protecting the bottom against scraping and at the same time adding staunchness. Of the three I personally prefer the 16-foot canoe with an inch keel. My own canoe is of that length, with 33-

THE REST STICK, AND ITS USE ON PORTAGE

SHOULDERING THE PETERBOROUGH WOODEN CANOE

inch beam; depth amidships of 12 inches; depths, bow and stern, 24 inches; and width of the comparatively flat-bottom before the turn of the bilge begins, 24 inches. I want you to get the significance of that last dimension. The reason why many canoes are so tipply that one has to part one's hair in the middle when paddling them is because they have not the flat bottom so essential for stability. They lack what sailors call bilge; they are too like a barrel in cross section and turn and roll as easily as a barrel in consequence. This is the reason why all canoes built with barrel hoops for ribs are so capsizy and unsafe. The flat bottom, on the contrary, gives her stability so that she stands up staunchly under sail and it takes more than a good deal of leaning by both bow and stern man together to make her go over. And you will get many a joggle and throw, from passing at full speed willy-nilly under tree branches and trunks; many a hurl bodily against the bushes at the stream side, when a tipply canoe will most likely upset then and there, because of the efforts of her crew to get out of trouble and protect their faces against stubs and the like—it's all in every day's run! So, see that she has at least 20 inches of comparatively flat bottom before the round turn of the bilge begins. As to

keel, my canoe has had at least a thousand tree trunks scrape along under her bottom, where she was either hauled over a down tree or urged and pushed over a submerged one, yet you cannot find a patch on her bottom; most of the latter are on the turn of the bilge where snags, rocks "an' sich" have each and all had their little bite. My boy's canoe, however, which has no keel, has a number of beautiful patches, 18 inches long, some of them, for the most part inflicted where the keel ought to have been. And every time we drag her loaded over a down tree we hold our breaths lest she "hogs back" or breaks in two! If a flat maple keel is put on, you must guard against leaks through the canvas by bedding it solid in canoe glue, with brass screws or rivets through into the ribs, sunk flush with the bottom. So put on, the keel will never leak and it is a good thing to do with your keelless canoe if you are much troubled with rents from touching bottom. About ⅜-inch hard maple, 2½ to 3 inches wide, makes a good keel of this kind.

You can buy these canvas canoes at all prices from $20 for a fairly well built one up to $60 for extra staunch models with reinforced gunwales and superior construction throughout. The popular Guide's Models run around $30 for both 16-

and 18-foot sizes. The wooden Peterborough canoes, essential in the rough rocky streams of the Hudson's Bay country, weigh more and cost $60 to $80, but will stand much harder usage. The canvas canoes weigh from 40 to 70 pounds. Of the decked wooden sailing canoes for open waters the cheapest cost about $100 with centreboard and rudder. The rig is extra, or you can sew up a set of sails yourself. If you expect to canoe much on big lakes or the big salt water bays of the Atlantic Coast, they are the best canoe. The decked sailing canvas canoes, weighing around 40 pounds, such as the *Waterat* models described by the writer in *Field and Stream,* and the *Varmints* built by a reader from the plans I published of the *Waterat,* cost about $7.50 for materials and none are manufactured for sale in the market. They make quite as able a canoe in heavy seas as the wooden ones, and, when upset and awash, will bear up their crew easily.

In selecting paddles, I prefer a heavy maple paddle for the stern man and a light spruce one for the bow. The maple one should be of 28-inch blade, 6½ inches wide and copper shod, and of length for the average man of five feet. The bow paddle should be of the same length, 26-inch blade, 5½ inches wide. The choice of length depends

upon your individual height. A six-foot man would do best with a 5½-foot paddle. Other advisable purchases would be lee boards and a sail for home cruising where there is much open water, but never take the sail unless you are to have plenty of use for it, as it is a terrible nuisance on portage and in stowing, and never take it in the late fall, for then the winds are too violent to use it without great danger of upset, which is generally a drowning matter even for the best swimmers, for the water is then cold enough to numb you quickly.

Having purchased the canoe, the next step is to learn how to handle her. The classic beginner's mistake is reaching too far ahead for his water, making his arms do the work instead of his body. You have no leverage when you dip in too far ahead; put in your strength as your left wrist passes your left hip while your right hand is sweeping the top of the paddle forward. This puts your shoulder and body into it—even your feet have to have a brace, for in paddling the whole body works, including the Unexercised Middle Third which the doctors preach about so much. This work of the whole body and not any particular part is why canoeing is less fatiguing than other forms of wilderness travel; instead of a few

muscles being worked until the fatigue poisons from them permeate the whole body, all the muscles of the body are called into play and each one is given just enough to do to make you well tired at the end of the day, not sick and headachy with exhaustion.

Balance of the canoe has a great deal to do with the art of paddling. If alone, do not sit on the rear seat, but rather kneel in the bottom ahead of the rear thwart, with your buttocks resting against the thwart. In this position you will find that you can paddle continuously on one side without turning the canoe off her course, merely rectifying yourself a trifle by a little flip of the paddle at the end of each stroke. The blade should be held at a slight angle from perpendicular to the line of the canoe's advance, so as to put a slight draw in the stroke, enough to compensate for the tendency to turn that paddling on one side will give. You will find that if sitting alone in the rear seat, no amount of draw to the paddle will compensate sufficiently and you will have to steer her at the end of each stroke which loses you speed and wastes strength. Sitting in front of the rear thwart will rectify this for you; if not enough, move a little of the duffle further forward. If alone in a head wind it sometimes pays to pad-

dle in the bow seat, letting the wind trail out the body of the canoe astern and keeping her on her course.

With two men in the canoe the bow man is captain in the north country where there are many rocks to be avoided, but elsewhere general usage has the stern man for captain. Team work must be learnt at once and a number of new strokes will come into play. The bow man has two new ones to learn, the pulling and the shoving stroke. Suppose you want to drag the bow over towards the paddle side quickly, while the stern man is swinging her stern. Then dip in far from the canoe with blade at about a 45-degree angle and pull the paddle towards you while making your stroke. The effect is to drag the canoe bodily in the direction of the paddle and helps the stern man materially in his manœuvre. The opposite, the shoving stroke, is with the paddle close to the canoe, again at 45 degrees, and sweeping outwards as well as backwards during the stroke, even using the gunwale of the canoe as fulcrum (if not overdone so as to endanger breaking the paddle).

In swift water full of rocks and snags the principle to aim at is to keep the canoe going slower than the water is flowing. If the water flows faster it will always carry the bow of the canoe away

from rocks, as the current will lift it bodily away from the rock due to the cushion of water piled up on the latter. Now, if the stern man swings the stern clear, all will be well, and here he must learn a new stroke, for, as the water is going faster than the canoe, he must know how to back paddle, both straight and with the pull and push strokes. To back paddle on the side opposite to the rock is to invite disaster, for the current will simply swing the stern around broadside to the rock and carry you down on it. The action wanted is a vigorous shove back stroke on the *same* side as the rock, thus making the current bear the stern *away* from the rock. As the bow is already clear, either from the sweep of the current or the bow man's efforts, depending upon the relative speed of canoe and water, it follows that the whole boat will pass in safety.

I know that this viewpoint is disagreed with by many experienced canoeists who prefer to keep the canoe always faster than the water, but in both steerage way is had by the paddles, and the slower method is the safer.

Certain general principles should be kept in mind in all waters. Keep out of the main strength of the current all you can, is the first one. Cut across all bends, and here is where the bow man's

hardest work comes. He must always strive to anticipate the river. It tends to swing the canoe into the main eddies, and your aim is to keep out of them. As you bear swiftly down upon a bend, the bow man first shoves the bow towards the shoals across from the bend, while the stern man remains quiescent, and, as soon as he gets her aimed right, the stern man puts in his strength and shoots her ahead across the flat in the still water. He should not paddle hard before this, as he will only drive the canoe into the bend, when the current will slam her against the undergrowth on the bank, making the bow man's work of extricating her doubly difficult. The way to avoid hard labour and sidetrack that dog-tired feeling at night is to keep out of the full current, and it makes for added speed, too, as the time lost by the other fellows in extricating themselves from trouble is far more than what they gain by a little added speed in rushing down into the bends and—trouble!

In shallow waters, where the river seems spread all over the map, just the opposite tactics are necessary. Find the channel and stick to it, merely cutting off the bends as closely as possible, but going where the deeper waters are.

Presently a down tree hoves in sight, and the

crew is in for more team work. An instant decision is necessary as to which end of it is negotiable and, right or wrong, the stern man has the say, as something must be done at once and you do not want the river to take command and sweep you down on the tree. Suppose the bow man finds that by a little axe work a way can be wormed through the branches at the top end. He chops away enough and you pull yourselves through. If "no go," back the canoe out, and here comes in a new team stroke, one that will take you across the river without going either up or down. The canoe is first gotten at an angle of about 45 degrees to the current, and the man at the upstream end then paddles hard upstream on the side opposite the current. The man at the other end paddles lightly *against* him, just enough to hold the canoe in position. The river will then breast her across and you soon find yourselves at the root end of the tree. If "no go" here, cross the stream again until in mid-stream at a likely spot to haul over the tree trunk, and still paddling against each other, let her drift gently alongside the trunk, broadside to the current. It will pin her firmly against the trunk, but will not upset her. Get out the heaviest duffle packs and put them on the trunk. Stern man then gets in and backs her stern out

perpendicular to the trunk, while the bow man lifts her bow out on the trunk. Stern man then crawls out, and, with one of them on each side of the canoe, she is hauled over the trunk. The size of the latter doesn't matter, a foothold can be maintained on the veriest sapling if you have your hands on the gunwale of the canoe. A high lift over a trunk too low to get the canoe under, generally requires all the duffle out on the bank and a carry made around, or else the canoe, empty, is snaked up on the trunk and shot over the other side.

In general, the stern man should never back paddle, as that uses up the strength of both men and takes all the steerage way out of the canoe, leaving her at the mercy of the river. The bow man should be keen enough to look ahead and anticipate the river, so as to get his end around without requiring the stern man to assist by back paddling. So shall you reach a camp site about 4 P. M. still in good fettle, so as to enjoy making a new camp under new conditions.

As to choice of a river, never go down one with farms and towns on its banks. It's hardly worth the candle when there are so many good ones flowing through the real wilderness which can be reached with a little carfare. Simply stick a shin-

plaster on the canoe and turn her over to the express companies to some remote railroad shack on or near the river. She will be waiting for you when you debouch from the train, and you will have no trouble getting her over to the river if you are a canoeist. I've seldom been disappointed in my river, provided only that she was wild. If there are habitations on the banks, *look out!* Stick to the hard and fast rule of never drinking the river water, camp at springs or boil the water, or your trip may have an aftermath of every one sick and some one down with typhoid, as once happened to me. To locate springs, look out for small rills or washed gravel spots on the banks as you go along. There are plenty of springs along every stream side (except in sandy, piney country where they are a rarity) if you keep an eye peeled for signs of one. Islands you should avoid for the lack of springs on them; it takes quite an island to develop a spring.

And don't have a schedule. I've had two trips spoiled by schedules to which some of the party insisted in living up to like a time table. When you get a likely spot stick around a day or so and fish or hunt. You might travel farther and fare worse, besides passing forever a chance for adventure and discovery of a place that you will

come back to again and again as the years go by. If it hadn't been for our old darky, Myles, we would have passed Wagram, N. C., and its wonderful quail shooting without ever knowing it; it has been a Mecca for us ever since. Suppress the fellow with that restless get-somewhere-else spirit and don't let it get hold of *you*—'s my advice!

In lake canoeing, particularly a chain of lakes such as one finds in Wisconsin, Minnesota and northern New York, a whole set of new canoeing conditions occur. We have the portage and the traverse, the latter unknown to river canoeing. The traverse, *i. e.,* going across a wide body of water from one point to the next or crossing the lake itself, involves judgment as to gauging the weather, and, if a squall hits you, team work in the crew to keep her going. Sometimes it is braver to face the crowd with an emphatic "No!" than to start something that you cannot finish (and the same applies to running rapids that better men than you have portaged around). It is better to make a double traverse with lightly loaded canoe than a single one with heavy, logy canoe and get swamped in mid-lake. The most nervous business of the kind I was ever in was as stern man in a 16-foot canoe with three persons in it besides all

our duffle, and a heavy whitecapped November sea on. It was sure drowning for us all if she foundered, so I just whistled a little tune and rolled up her gunwale to each and every whitecap with a little flip of my body; and in time we got across, much to the astonishment of some fishermen, who did not dream that any craft would be abroad on the waters in such weather. In running rapids you want everything lashed fast, and in case of disaster stick to the canoe so that eddies will not pull you under. It is not far to shore, and you will soon be swept into a backwater. In traversing, on the other hand, you want everything free except the paddles, which should be tied to the canoe with about eight feet of strong twine each. If swamped or upset, get everything out of her at once and with one at bow and the other at stern kick her ashore. She will drift there in time of her own accord, especially in a strong wind. She will bear up two in the water, and one can even lie down in the water inside the canoe and rest. If alone and you find yourself getting numb with cold, crawl inside and lie down in her awash. A mere touch of your body on her bottom suffices to bear you up, and you can keep exercising by dashing out water with your hands. It will not do much good except to keep you warm if there is a

sea on, but if reasonably calm you can empty her that way. If quite calm you can empty her alone by either rocking or "shoving" the water out. Swim 'round astern, and, grasping the high part of the stern rock her from side to side, allowing the momentum of the water to slop it out over either gunwale. "Shoving" it out consists in pulling the canoe sharply towards you, at the same time lifting the stern, when a rush of water pours out over the bow, and levelling her before it has time to flow back. Then, shoving the canoe sharply away from you and depressing the stern has the effect of causing the water to pour out over the stern, and, in time you will get her about half empty, when it will be safe to attempt to climb inside over the stern. I have done all three methods of bailing out a swamped canoe and would consider the methods feasible for a medium strength man in anything from a flat calm to a considerable ripple, but not in seas strong enough to bear white caps. Two men in the water can empty a canoe in any sea, treading water while they lift her sidewise, finally inverting the canoe in the air over their heads and letting her come down empty, after which, by jumping simultaneously in at bow and stern on opposite sides so as to balance her, they can get in. The paddles, be-

ing tied to the thwarts by thongs, will be floating alongside, and all floatable duffle can then be recovered.

Many a weary mile of lake paddling can be obviated by carrying a light tarp which can be rigged on two spruce spars cut in the forest. The mast, however, should be securely stepped, and so, to avoid upsets from the mast going adrift at a critical moment it is well to have a good step screwed to the ribs of the canoe just aft of the bow seat. By lashing the spruce spar to the seat rail with its foot in the step you have a good strong rig, and the other spar as a sprit holds out the upper outer corner of the tarp. Main sheet is tied to the lower outer corner of the tarp, and you have a good sail before the wind and can even tack and reach after a fashion, though she will make a great deal of leeway.

Between lakes and around bad rapids you will have to portage. Look for a blaze, or tin can or other signs of a landing place marking the end of the portage trail. If it seems much used, it is a sign that better men than you have preferred portaging to shooting the rapids and you are in for a portage. Here is where light loading counts, for if you have to double trip it it means six times the walking and time lost. Here's where a

good packsack rig scintillates, each man with all his personal duffle and half the grub in his pack and the canoe inverted over the heads of both of them. A yoke made of a sweater or Mackinaw helps a lot, as it is not so much the canoe load as the distress that it causes on shoulder blades that counts if you try it raw. If there are three in the party, the duffle can be divided between two of them and the third man will carry the canoe. The classic Hudson's Bay method is to first lash on the two paddles side by side, tying the handles securely on the after thwart and the blades as securely on the forward thwart with just space enough between them to pass your head. If not lashed securely they will go adrift when you try to turn the thing over your head. Now, grasping the canoe by the gunwales, you sling her up and over your head (lightweights had better leave one end of it on the ground) and then insert your head between the paddle blades, letting the latter rest on your collar and shoulder bones. Here also a sweater or other extra garment tempers the weight to the shorn collarbone. Carried this way a canoe is no great burden and you can shift back and forth along the blades to get the right balancing position to let her tip up her bow so you can see ahead on the trail. A rest stick about

CARRYING THE CANOE ON PADDLE BLADES

AT THE END OF THE PORTAGE—UNLASHING THE PADDLES

5½ feet long is useful to carry, supporting the canoe for you whenever you want to get out from under and rest your shoulders.

All of which brings us to the important question of weight of outfit. Where there is little or no portaging to be done outside of hauling over down trees and around dams it is not necessary to pare down fine, but on a regular trip with lots of portages the brother who insists on taking more for his personal comfort than the whole load of his partner including his share of the grub,—well, he is one of those one-time campers, the kind you do not go with again. First as to party loads, the tent, cooking outfit and grub containers. There are a number of light canoe tents made, all with the idea of having something that can be quickly put up with a few short poles. You should not have to allow more than fifteen minutes to getting the tent up and three to striking it. Such tents are the Hudson's Bay, Hiker's, Canoe, Forester, and the varieties of lean-to tents, too well known to need any description here. For a party of two or three, my choice has been an open front model for spring and fall canoeing because of its warmth with an open fire in front, the "perfect shelter tent" a lean-to with mosquito-bar side for summer, and the "Blizzard" modification of the

Hudson's Bay for snowy and bitter weather when you want a tent stove in the door of the tent. For a larger party there is a better tent than any of them which I learnt from George Borton, the canoeist, and I shall digress here to describe it. I have dubbed it the canoe-and-tarp tent. To begin with, you don't want to spend more than six pounds on your canoe trip shelter tentage, and the nearer you can get it to 3½ pounds the better. Well, this tent is simply a large tarp about 10x12 feet, weighing six pounds in most modern tent fabrics, and when a camp site is selected it is with the eye to a level spot with two trees growing on it about eight feet apart. To these the canoe is first lashed on its side so as to bring the lower side about 3 feet above the ground. Over the upper side of the canoe is spread the tarp with ropes running around and tying on the lower gunwale to make the tarp secure and then the front edges of the tarp are guyed out to convenient saplings or stakes, with a single eight-foot pole in the centre of the front edge of the tarp. Now, as the canoe is 33 inches wide it follows that the upper rear edge of this tent is 5 feet 3 inches above the ground so that you have in effect a big lean-to tent, 10 by 12 feet in area, approximately 8 feet high in front and 5 feet at the back—all on six

pounds of tentage weight. A party of four or five can spread their bedding with ease under this shelter, and that is not all, either, for before the sleeping bags are unrolled they can stand there in rainy weather and get grub in peace with the fire just in front of the outer edge of the tarp, and an eating table can be set up on stakes, the top being a box or paddle blades laid end to end—a dozen ways will suggest themselves. Nor is that all, either, for the lower side of the canoe gives you a long shelf on which can be put all the food-bags, small duffle and cooking utensils not in use, a handy, dry place for them, right at the chef's elbow. We used this type of camp on a trip down Wading River in November and it was a great success. The pictures will give you a better idea than my words how the canoe-tarp tent looks when set up. For insects the individual head net for sleeping is best for this kind of tent.

For cooking outfit there is no need to go beyond aluminum in any of the well-known kits. While tin will do all right for eating plates and mixing pans, for the fire you want aluminum because of its great conductivity of heat, which prevents a hot spot localising and scorching the edibles. That and its lightness and durability. For drinking cups, enamel is the thing, as it will not burn your

lip as tin and aluminum will surely do. Your mouth can stand (and craves) more heat than your lips can bear when pressed on raw metal. But do not go on a trip without a wire grate of some kind. The new one with metal around three sides to keep in the heat and keep the wind from blowing the heat and smoke out from under the sides and around the campers seems a boon, for most canoe camps are near waterside, generally on a windy point to avoid mosquitoes.

For carrying the grub the side-opening grub bags which roll up the lips around maple rods are good, and will float and keep things dry in spray, upset, etc. Inside them go the parafined muslin food bags, 9 by 8 inches diameter and 12 by 8 inches diameter. The grub bags are 22x8 inches diameter and will hold about 20 pounds of grub each. Another good canoe rig is the tough, thin, double-veneer suitcase, with rubber lips to make it watertight. It makes a good central package in any canoe, and a solid back to your pack if same is carried in a leather harness on portage. In camp the case is opened out and inverted on four stakes, making a table about 22 by 28 inches, and inside it are carried the cooking pots and small food containers when travelling.

As most canoe camp sites are beside the water,

one has to go ready for insects, mosquitoes, punkies and black flies. So bring along two head nets to wear about camp (one of them usually getting torn beyond recall before the trip is half over). Also be sure that a punkie bar made of thin lawn muslin is sewed to the tent all round, with a generous drop curtain effect to take care of inequalities in the ground, and in the canoe-and-tarp tent bring along your individual punkie bar and rig it over your sleeping bag on withes bent over the bag like an inverted U.

CHAPTER V

WE DISCOVER THE ADIRONDACKS

It is a curious fact that the Old Forge-Saranac trip, well known and ancient as it is, has not been written of in the outdoor press in years. Many a time have I pored over it in maps, but the sight of a well-defined steamboat route running the whole length of the Fulton Chain and through all the principal lakes of the trip, made me pass it up whenever a canoe trip through the famous old route was proposed. I pictured a chain of Lake Hopatcongs, with a summer cottage on every available point, and nowhere where your honest vagabond camper could lay his head without having the owner's dogs set on him. It just *couldn't* be uncivilised enough and yet have all those steamboat lines in evidence, for steamers mean people to ride in them, and that argues a crowded lake.

As a matter of fact, the country is too big to be mindful of a puffy launch or two masquerading as a steamboat line, and, as we came to learn later, those boats looked like lone ants crawling over the

bosom of the waters when seen from the surrounding mountain tops.

So we decided to try it, and the party was soon made up; Joan of Arc the Second in the bow of the canoe, Ye Olde Scoutte at stern paddle and the Doctor amidships. There was a thousand-to-one chance of our picking up Nicky somewhere in the Adirondacks a week later, and about the same time the Doc's brother, Professor Andrews, and Arthur Loesser, the famous pianist, were to join us at the Saranac end of the trip. The route lay about 120 canoe miles in a general northeasterly direction across the Adirondacks, with sixteen lakes, two rivers, and some thirteen miles of portages making up its tortuous length. Once at Saranac you could blossom out in a dozen directions and do a dozen delightful things.

To provide a canoe the simplest scheme is just to put a shin plaster on your own and let the express companies deliver it at Old Forge or Raquette Lake, whichever you elect to start from. The cost for mine from Allenhurst, N. J., to Old Forge, N. Y., was $3.60. Delivery time two days. Returning it from Saranac Lake, $4.95. A canoe can be hired at $5 a week from Frank Colbath in Saranac Lake, or from the railroad agent at Old Forge. As to direction, the start at the Old Forge

end is generally best, for the prevailing wind in the Adirondacks in summer is southwest, so that you have it most of the time at your back, whereas in the reverse direction, except in a rare spell of northwest weather, you would have to fight against it continually.

The trip began, as most good trips do, with a Pullman car, where sportsmen and their duffle are most decidedly *not* looked down on as gipsies (as they always are in the plebeian day coach), and, before we had hardly got through our gossip over a moccasin at which the Olde Scoutte was stitching interminably, the porter had the berths made up and we turned in for an early start next morning. Our car was shunted off at Fulton Chain Junction about three in the morning, but it was five o'clock before the porter poked us up for the short run in a stub-end train to Old Forge. Arrived there we hunted up a hotel, according to programme, had breakfast and changed from "cits" into hunting clothes. In passing it is well to remark that the expense of this—75 cents for breakfast and a dollar for a room for ten minutes' use—could just as well be cut out by getting the canoes at once and pushing on a mile or so down the lake, where a change can be made, grub cooked and the suitcases containing your city clothes

THE TENT COT AND "HANDY" TENT

CANOE AND DUFFLE IN ONE CARRY

brought back to the station and expressed to Saranac Lake.

However, buying our fresh meat and loading the canoe, which was lying alongside the lake bulkhead awaiting us, we were soon under way.

First and Second lakes are fairly uninhabited, with but few camps along the shores, and many a nice camp site I spied out—a useful bit of information for the fellow coming the other way who wants to make his final camp within easy striking distance of the railroad station.

Third Lake was pretty crowded, and Fourth Lake awful—a mere summer boarding place, with strings of cottages all along its shores. My scheme for spending a few days here fishing went a-glimmer, but our report cards speak of good fishing in this lake. I cast a number of likely spots without result and am inclined to the view that still fishing or trolling a whole day at a sitting, is needed to produce a mess of bass.

Fifth Lake is a mere pond, reached by a tortuous channel thickly lined with summer cottages and hotels, and here your first carry begins. A boy, with wheels, lives up the road a bit, in a grey wooden house, and his wheels are to hire for 25 cents, so, as the carry is but half a mile along a country road, we hired the wheels and were soon

in Sixth Lake. Here is a fine spring, across the dam in a field back of a barn, and we had our noon luncheon of cheese, rye bread, wurst and fresh fruit before pushing on. Sixth Lake is small and uninteresting, but the permanent camps begin to thin out, which lends a measure of encouragement to the real woodsman. It leads in half an hour's paddling direct to Seventh Lake, a rather promising bit of water, several miles long, with very few camps on it and any number of places to pitch your tent and have all the wilderness for your own. The strong southwest wind was at our backs, and the lake had quite a chop on it, but our Morris was a stanch craft, for all her heavy load of three people and their duffle, so that her five inches of freeboard proved ample. I was for stopping and making camp, but Joan would have none of it; the outdoor fever was in her blood, her cheeks bloomed under their tan, her eyes sparkled, and the zest of adventure had laid its fascinating spell on her. The delightful Doc was also keen for more adventuring, and so we shot across Seventh Lake, with a fine young thunderstorm brewing. At its upper end is a vast swamp, which in the Adirondacks means, not a green marsh, but a deadwater full of stumps and dead trees, weird, gaunt and picturesque to look upon. Through this we snaked the

canoe and hit the first real portage, a mile carry from Seventh to Eighth Lake, just as the rain began.

This did not halt Joan one second. There was a shed handy for shelter, and a pair of wheels to hire for a dollar, but she was through with civilisation for good! The trail led off through the bush, a narrow beaten path, and so we organised for our first carry in the rain. Joan had a cute little squaw bag full of her personal effects on her back; a camera and a sketch box draped across either shoulder and in her hands she carried the camp axe, fishing rods and one duffle bag. The Doc rigged a pack of his tent and bed roll *à la* Dwight Franklin (the carrying and harness strap being a simple length of broad webbing), whilst I swung my packsack sleeping bag upon my shoulders, weighing, with most of the grub for the party, 35 pounds. The paddles were lashed securely from bow seat to forward thwart brace by the tow line, leaving just space for your head in between. They must be well lashed so as not to go adrift or you will be in for much misery. The canoe weighed 80 pounds, so that my share of it was about 50. The Doc took the remaining 30 on his shoulder, resting the stern of the canoe on a pair of socks lain flat over the shoulder, and, to even him up,

I lashed Joan's folding tent cot, a light steel-elm-and-canvas affair weighing eleven pounds, in his end of the canoe.

And so we started single tripping it on our first portage. As I also had the growler slung around one shoulder with four pounds of meat and perishables in it, my total load was 90 pounds, which was nearly too much for a 130-pound man. The Doc struck up a cheery chanty, and we were off! So were the flies, mosquitoes and punkies, which now began to put in evidence. I counted a hundred paces and was then glad enough to stop and cut what Frank Stick calls a "rest stick." This is a great life-saver. Just a stout sapling, five feet six inches long, which you carry in your free hand. When tired simply stand it up in front of you and let it take the weight of the canoe off your shoulders.

Joan led the way, breaking trail. I simply followed the heels of her dainty hunting boots, while the good Doc steered the canoe free of snags and brush. We made Eighth Lake in three laps in a pouring thunder shower, and when at last the open water showed up, the sun came out, and—blessed sight—there was the State Conservation Commission placard nailed to a tree! State land at last!

The people's playground, free of cottages and inviolable forever! I breathed a prayer of thankfulness to the wisdom of Rufus Choate and his associates who wrote into the Constitution those words that the wild lands of the State shall be forever kept free of the lumberman's axe and the squatter's cabin. Here at last was a lake with never a cottage on its shores, wild forest all about, and the green clad hills smiling under cloud, and sunshine! For, the curse of the Adirondacks is the cottage or permanent "camp." A man clears a fine site on some point, puts up his house—and kills a quarter of a mile of lake front, for all the forest back of him is of no use to the woodsman if he has no access to the lake. Another man does the same, and soon every available point is taken and you have the alternative of pushing on or camping on some flat shore with the brush and big trees too thick to put up a tent, the insect pests at their worst and no spot level enough to make a camp site. Such is the whole Fulton Chain with the exception of Eighth Lake and possibly Seventh. Luckily, with a southwest wind one can push right through, as the whole distance is but 28 miles, but with a northwest wind, or, still worse, a northeast storm, one would be hard put to it to

get through the Chain at all. If doing it again I would certainly ship the canoe to Raquette Lake and begin the trip there.

About the centre of Eighth Lake is a small island with two fine camp sites on it, and here we finally pulled up the canoe for the night's camp. The Doc is one of those dear, delicious souls who cannot pick up an egg without putting his thumb through it, and here he got his name, "The Great Soul," which stuck to him throughout the trip. The Great Soul was entirely charmed with the scenery, and the poetry of the outdoors had permeated his being, so he proceeded to put up his tent on one ear, while I unpacked our tarps and put up the Lone Hiker's outfit described before in these pages. Under the ample spread of the tarp of that outfit went, in addition to my stretcher bed, Joan's folding cot, and over that a ridge rope with yet another tarp, which, when tied down to the legs of the bed, made a tent-cot with the two ends enclosed in cheese-cloth mosquito bars.

The Great Soul was strangely quiet. "I'm simply lost in awe, Cap, at all the wonderful things that have come out of that pack of yours. They just couldn't have, you know! Where they were all stowed is beyond me! Apparently you carried nothing, yet here is a whole encampment,

two sleeping bags, a cooking outfit, and I know not what besides!"

I grinned modestly and got at the Doc's tent, which, as it is nearly ideal for Adirondack camping, will deserve particular description. It is called by some firms the Handy tent. It is in effect a closed tent, one half of a square, walled miner's tent, if you can conceive of such a thing in your mind's eye. It takes but one pole, covers 5x7 feet of ground, has walls two feet high and a peak six feet high, so you can stand up to dress, and weighs seven pounds. Best of all, it is of woven canvas with no paraffine, so that the breeze sifts through it at night, keeping the air sweet and clean, not foul and breathy as it becomes with all closed paraffine tents. Once inside for the night you close and tightly lace the front, and then, with electric flasher, calmly murder each and every mosquito, black fly, punkie, squeazlegeaque and midge that has accumulated inside, after which you will have a night of peace

But, while all these flies were at us, they were not overly bad, as yet, for the punkie does not come out in force until dusk, when the spruce smudge is your only sure protection. I gathered a handful of dead balsam twigs and started a sassy little fire which soon had a meal of steak,

creamed spuds, tea, prunes and baked corn bread ready to serve.

The Doc shook his head. "It simply can't be done, and it *isn't* being done!" he said in an aside to Joan. "I grant that Cap *is* serving this meal cooked on that handful of match-sticks for firewood, but it really can't be you know! Up at Temagami we use a cord of wood and cook over the coals—and it's the only way I've been led to understand."

However that may be, the meal was eaten with all haste, as the punkies were upon us; also the black flies, and they soon drove us to bed. The Doc retired to his tent, Joan was ushered into her cot and I slid blissfully into my stretcher bed and sleeping bag. I pulled the mosquito blind down and laughed at the buzzing demons outside. Just as I was dozing off a fiery itch on my face called for a hand-slap out of the bag. Horrors! Punkies! Also midges! Also black flies! They went through that mosquito blind like a tennis net, nor did I get a wink of sleep that night. Joan hardly fared better, as the punkies and midges found the cheese-cloth a simple matter of perseverance to penetrate; and the Doc, having put his tent up, leaving sundry holes under the sod cloth, soon had his abode full of the pests. Fly dopes only served

THE END OF THE CARRY — RAQUETTE FALLS, ADIRONDACKS

as a mire in which to grind the myriads of demons. We dozed and slapped through the night and got under way early for the Browns' Tract portage next morning.

Once on the lake we were at peace again, but the black flies bit us pretty freely on the carry, which we double tripped. As we were held up at noon by a thunderstorm, it was 2 o'clock before we made way down the backwater for Raquette Lake. Good bass water, from all appearances, but we had no time to cast it. Raquette is a big fellow, with an open six-mile traverse in which I dreaded being windbound, but to our delight there was but a slight sea on, so Joan and I drove the canoe across that six miles with all due diligence. We found Sucker Bay a smother of white caps and so waited on a little rocky islet for sunset, when the wind would probably go down. Joan dozed in the bottom of the canoe, while the Doc and I got out on a huge rock and buried ourselves in the full score of "Till Eulenspiegle." He is teacher of theory and composition at the Institute of Musical Art, and he's as full of notes inside as a grain elevator is full of wheat. A great card, a learned and witty comrade on the trail; and a finer, gentler soul never breathed.

Six o'clock came and no abatement of the wind.

We spied a bluff with no camp on it, far to the leeward. Raquette is one mass of rich men's villas and no place for outers such as we, but here was evidently the one good chance, so we ran for it over a boiling sea and soon were up against the wildest coast you ever laid eyes on. The sandy bluff rose sheer for forty feet, with great trees tumbled prone down its banks, and up these we three adventurers swarmed, hauling up the duffle with ropes and taking advantage of every twig to climb. Peace at last; a high wind and no insects. The forest was so dense that you could scarce push a hole in it anywhere, but we selected a pine-needly dent on the very brink of the bluff and started making camp. In ten minutes the locality was a swarming mass of punkies—the fate of him who cannot camp on a point! We soon were routed and set forth again into the stormy night to find a point. It turned out to have a million dollar establishment on it, with the nearest hotel four miles across the black, wind-tossed lake, and it was raining, so we camped, gladly enough, in the rich man's back grounds and got away early, thankful that he did not set his dogs upon us.

A carry across Bluff Point solved the problem of how to get around Sucker Bay, and soon we were in Outlet Bay and the Raquette River. It

was a glorious sunny morning and the river a wild scene of beauty. After all too few miles of it we reached the carry to Forked Lake. This was easy; a broad road and a pair of wheels got us over in one lift, and at the other end was a beauty camp site, under huge pines, carpeted with pine needles and free from insects. Here we stopped the whole afternoon, had a big feed and made a pleasant camp. Joan painted her first sketch, the Doc read "Till," while I most shamelessly loafed. You cannot fish in these waters as they are part of the Whitney Preserve, but you are welcome to camp. That canoe ride that we took on placid Forked Lake at sunset will always remain one of the golden hours of the past. The tall mountains frowned down upon us on every hand. Pricked out in gold against a violet sky, their serrated edges rimmed the horizon, while vistas through their gaps disclosed yet other peaks far away in the promised land to the north. The white-throated sparrow lifted his broken-hearted refrain to the endless suffering of the North; the thrushes found melodious breath in the sombre forest depths, and out on the still waters there was silence and peace. Only the silent, smoky Red Man was lacking to make the picture perfect.

Our camp at Forked Lake that night was peace-

ful, and in the morning we soon made the run to the end of the lake, where a team will take you to where the Raquette is navigable. You can also branch off at Forked Lake and make a detour here via the Tupper Lakes, but, as it involved a two-mile carry through the brush over a blazed trail, we passed it up. The old settler with his team soon delivered us into the Raquette again, and, as it was swift and rocky, I put Joan the Intrepid in the bow. Between us is a perfect understanding, so that words are unnecessary as to which side of a given boulder to head the canoe, and never yet have I seen her even scared, let alone panic-stricken, no matter whether the danger be wild beast or wild water. We were told that the flies were awful on the Raquette, but found them not so bad, nor was that beautiful stream hard to negotiate, so that in due time we reached Buttermilk Falls, where the river drops a hundred feet, and a long one and one-half mile carry began. In taking this it is well to end at the second prong leading down to the river. Most canoeists take the first, which you will recognise by a high cleared field on the right of the road, but an eighth of a mile beyond this is the second prong, which leads you to a delicious camp site situated on a high table far above the river. A grove of big pines keeps this spot clear

of underbrush, and the oak chips of a large boat once built here furnishes an abundance of firewood.

Here we camped, with the sun setting behind the tall mountains round about. I fished the waters, as they looked bassy, for there was many a bank of pickerel weed—but never a strike. We put away the tackle, discouraged, and next morning pushed down Long Lake to the village of that name, where we grubbed up. That afternoon the wind got up so strong that we were finally driven ashore at a tiny beach under the lee of Mt. Kempshall, opposite Camp Islands. Here we put in at about three o'clock and put up the tent to take a swim. As we might fare farther and do worse on camp sites, we finally made it our night's camp. It was a wild, lonely spot, free of flies, with naught but buck tracks on the sand, and twice during the night wild cats shrieked at us from the swamp at our rear, and once a bear grunted, but Joan in her tent cot gave no sign of being perturbed; in fact she mentioned these details as a matter of course next day.

The next morning we started early, and, helped by the protecting bulk of Buck Mountain opposite, we ran the rest of Long Lake without becoming wind-bound and were soon in the Raquette

River again. Followed a morning of sheer beauty. The river was placid and easy to negotiate; deer came down to drink; wild animals were to be seen at every bend. I tried fishing, but soon ran into a sign saying that some rich man owned the whole damn river and you were to leave his fish alone! By noon we made Raquette Falls and did the carry in an hour or so, and here we ran into the first sign of real fishing. A party had just come up the river and had a nice bass of some three pounds weight and two large pike, caught that afternoon in an hour's fishing. We rigged up as soon as we got under way and presently had two bass, taken trolling with a single spoon. Made Axton, the Deserted Village, by sundown: a desolate spot, the best camp site being under a pair of pines up on a high, grassy hill.

Next day we started up Stony Brook, interesting because of several beaver dams, over which the canoe was to be hauled. Here these same beaver played a scurvy trick on us. The map shows both Stony Brook and Ampersand flowing into Stony Pond: the beaver have dammed Ampersand into Stony at one of its bends and before you know it you are going up Ampersand. It leads in for four miles back of Stony Brook Mountains, and gets you nowhere, but we did not grudge the

day lost on it, for here Emerson, Lowell and Agassiz once camped in 1857, and made the pages of literature resound with the beauties of Ampersand. Clear as crystal, it winds up through rocky defiles grown high with spruce and balsam, now a calm dead-water, now a rushing rapids, every so often a beaver dam or a great windfall of down trees to make it interesting. It is the far-famed Edmundsklamm and the Ober-Schluese of the Bohemian Switzerland rolled into one—for sheer beauty one of the loveliest spots in the whole Adirondacks. Finally Ampersand becomes a mere wading proposition, pulling and hauling the canoe by a tow rope, and at about two o'clock we began to realise that somehow we must have got up Ampersand instead of Stony Brook, as the map shows the pond but a mile up the brook and we had done at least four. So we started back, and, at the last beaver dam, the mystery was cleared, for a straight cutoff took us direct back into Stony. Beware of straight cutoffs! Nature never makes them, as I ought to have known when we left the sinuosities of Stony to go up it that morning. In half an hour more we were in Stony Brook pond and had camped on the high bank at its farther side.

From there at sunrise through Second Stony

pond and over the carry to Upper Saranac was but a morning's work and by noon we had carried past Saranac Club and out into Middle Saranac. Quite a sea was on it, and Joan went to the bow. Four miles we shot across the lake before a smother of storm. The Doc was more than uneasy; his goat had become detached and he looked anxiously for a lee shore. We passed several great sunken rocks, with white caps curling over them, and at the far end was a vast field of pickerel grass with the outlet somewhere concealed therein. And about here Joan's fiery courage showed her mettle, so like that of dauntless Joan of five centuries before. Whether riding her horse at breakneck speed, sailing a boat in a smart blow, mountain climbing, shooting or fishing for game fish, Joan is always the same—courageous and capable—and it was the school of the great outdoors that made her so.

We bore swiftly down into the pickerel grass, heading into a spot where they seemed to be thinning out. Here was the outlet—or nowhere, for there would be no turning back against that sea and wind. Presently we shot into the still waters of the Saranac River, while the lake roared outside, our hunch proving good medicine.

NEGOTIATING A LOG-JAM ON AMPERSAND BROOK

"We got the Doc's goat that time, Cap," chirped Joan over her shoulder.

"It just isn't done—that's all!" demurred the Great Soul truculently. "I wouldn't have made that traverse for a million!" But the peace of the Saranac descended upon us; also the black flies were gone for good. An hour's paddling brought us to the lock where we boiled the kettle and then slept for an hour. We were waked by two old-timer Adirondack natives coming up the lock. Typical men of the woods were they, of a hale old age but vigorous and with a forward stoop to the shoulders that spoke get-there in every line. They raised the lock with their guide boat in it and we emptied it again to let our canoe down. Next came a beautiful paddle down the Saranac, under tall rock cliffs that towered far aloft with pigmy spruces growing out of crevices in their sides, and by sunset we were out of the big marshes in the lower end and soon made the Narrows. This is all State land and good camp sites everywhere. We passed several, occupied, and finally Joan spied a clump of pines on a rock point ahead where we landed and were at last on our Isle of Delight —120 canoe miles from Old Forge. Only at night did the mosquitoes and punkies bother us, making it necessary to cut out the camp-fire and take to

the tents soon after dusk, but we soon settled down to a fine régime as follows: Sunrise; bath in the lake; grub, painting and writing music, more bath in the lake, dinner at four, bass fishing around the islands until eight P. M.; bed. Nobody did a stroke of honest work. It was delicious. I taught Joan skittering with a five-ounce fly rod and a single spoon with a three-foot gut leader on it, and together we floated out the golden evenings taking bass and pike to our heart's content, while picture after picture of mountain and lake melted and faded under the sinking sun. The bass struck her lure four to my one, but when that one did hit my dancing minnow he was a big one! and, then, the next day after I would be aware that certain little violet eyes had been busy watching scenic effects while a sun-burned forearm was taking bass, for on the easel her paint brush would spread a gorgeous sunset, over black and beetling Boothbay mountain, bold and forbidding in his purple shadows, while an orange sky, mirrored by an orange lake, set off his majestic bulk. You can't paint a sunset while the sun is making it, but Joan's keen memory could put it on her canvas next day.

Soon the grub ran out, and we went in through the fourteen-mile chain of lakes and river to Saranac Lake village. Somewhere in a narrow pass

of the chain a wild man suddenly rose out of the bushes and challenged us whether by any chance our canoe could be Warren Miller and party. Nicky! by all the Red Gods! He had been waiting for us three days at that narrow point, photographing and flashlighting beaver by night and dozing by day.

"I'm Exhibit A in these regions," gurgled Nicky as we went ashore to visit. "Every party that passes comes ashore here to poke me and see if I am dead or alive."

He showed us his bathing suit, sewed up at the arms, which he pulled over his head at night so as to sleep free of flies, while a pair of socks protected either hand and an extra shirt kept them from biting into his back. But the great stunt of Nicky's outfit he now exhibited with huge pride—ten tins of canned heat, solidified alcohol!

"I'm through with camp-fires and picking up sticks!" declared Nicky through four days' growth of beard. "It's too much work, and I came up here to rest." Whereat he proceeded to put his system to test. Over the alcohol went a diminutive fry-pan full of steak, and, while this was frying, a dose of postum went into another pan. This went on the burner while the steak was being gnawed, to the accompaniment of a hunk of

rye bread, which Nicky chewed because, as he explained, he was too lazy to cut it.

"Only some more unnecessary work," grunted Nicky cheerfully between mouthfuls of steak. "I'll admit that I'm a mere swine compared to your standards of camping, Miller, but then I simply would not have your standards, don't you see"—which is ample explanation for any conduct of life, from cannibalism to eating blubber!

At Saranac we wired for Professor Andrews and Arthur Loesser, the famous accompanist of Maud Powell, and, what with a thunderstorm and an uncounted census of ice creams eaten by Joan, we did not get started back until long after dark. Nicky and the Doc soon got lost in the stumps on Lake Otseetah, and, a big windstorm coming up, we headed for a light which proved to be the camp of a hospitable German from Boston. He and his little wife took us in and set before us everything from beer to champagne, such is the hospitality of all outdoorsmen. About midnight the storm abated and we set out again, but were soon lost in the stumps as it was too dark to even see the headlands, so we finally took refuge on the German's porch at 1.30 A. M. We tried to be off early, but his little wife beat us to it and set out coffee, eggs, cereals and toast for the whole crowd,

so that we could not refuse a breakfast with them. It was ten o'clock before we bade our pleasant hosts good-bye.

Nicky was dying with ingrowing conversation, and forthwith stole my wife, so for fourteen miles Joan had naught to do but lie at ease in his canoe and keep the conversation going with a chance word or two slipped in edgewise. Indeed, with the Professor and Arthur Loesser up next day I saw but little of her for the rest of the week—you know how it is, husbands are an old story but these men were all new and interesting.

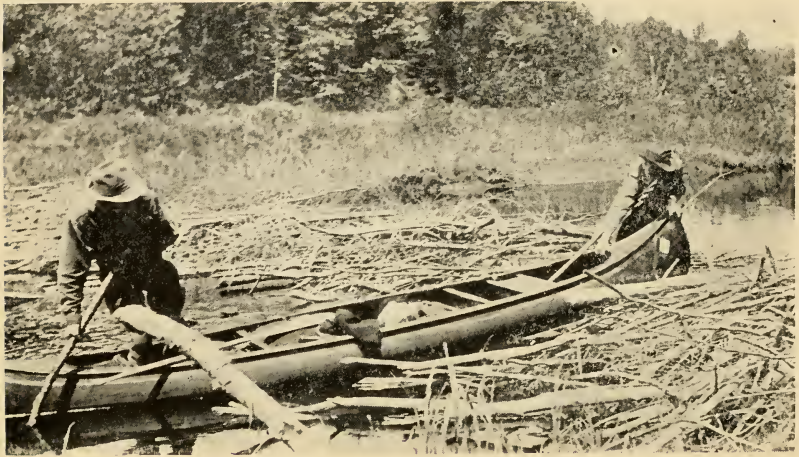
Returned to the island, our camp was now a most exquisite experience. The boys were all intellectuals of the keenest, and the witty repartee, learned sayings and deep discussions of every conceivable subject in the domain of the fine arts that went on about that camp reminded one of a scene from Trilby in the studio of Little Billie. Joan and I solved the punkie problem by putting our two tarps up as a wedge tent and sewing in ends of thin lawn, which the tiniest of squeazlegeaques cannot get through. Nicky slept on a rock in his awe-inspiring costume, and the Andrews and Loesser used the Doc's tent which will sleep three at a pinch. The three cuisines were separate, but each mess often invited the other crowd to eat,

as, for example, when Nicky saw that his two-pound beefsteak was sure going bad and so gave a beefsteak party or the Andrews opened a can of pears or when the Millers caught a big mess of fish and gave a fish dinner to all.

The boys had all their stuff in numerous end-opening duffle bags, and, as the Doc's shaving cream was at the bottom of one of the five, our camp site was soon strewn with the contents of *all* of them. It is unnecessary to add that the cream in question turned up in the bottom of the last one—"Good massage for the hip joint," as the Doc explained in parenthesis.

"My curse upon you!" cried Professor Andrews genially from the fireplace. "Where in all that muddle is my salt shaker?" Followed another search, in which socks became separated from their mates, pyjama tops from their bottoms, and the important ends of sundry bathing suits lost for good and all.

"Oh, for a good, rousing thunderstorm!" exclaimed Cap, under his breath, with unholy joy. But it didn't materialise. In the Adirondacks they do their raining at night, leaving the days clear and sunshiny. However, that meal for the Andrews was cooked and eaten at length, and all their duffle stood in the hikers' tent, Nicky hover-



HAULING OVER A BEAVER DAM—STONY CREEK

ing around the outskirts of the feed with his postum can, his rye bread and his steak, surreptitiously coming in on any loose ends of food that might be left over.

Professor Andrews then disposed his lengthy form on the rock on which Joan was squatting with her sketch box, and I foresaw little painting done on Mt. McKensie that afternoon, but somehow she managed to keep the flow of conversation going incessantly, while brush-stroke by brush-stroke the canvas grew, until I called her at 4 o'clock to eat and go bass fishing.

And so the golden days slipped by; an ideal existence—I could have kept it up all summer—freedom to loaf and invite your soul, charming and entertaining companions, all the time in the world to work at that which you liked to do best, and—*no worries!*

We ended our stay with a climb up Bootbay Mountain through the trackless forest. The view from the burnt rocky eminence at its southern end is one of the finest in the whole Adirondacks, and all our former route as far back as Forked Lake lay stretched out below us. Never have I seen so much deer sign as on that mountain, and, the fates being willing, Joan and I will get our buck there this Fall.

Finally Joan and I turned our canoe reluctantly homeward, leaving the blessed boys camped on their rock. They came home later, via the Tupper Lakes (two mile carry in the worst brush in the State) to Forked Lake, thence to Raquette Lake to Raquette Station, but we went in to Saranac Lake, changing into cits at an abandoned camp site a few miles out of town.

It was a fine, inexpensive two weeks, full of health and hard work, and, oh, ye outdoorsmen, if you want the finest of chums on a trip like that, train up your little wife to be a real outdoor girl and take her along!

CHAPTER VI

CAMPING OUT DE LUXE

That eminent satirist, Mr. George Jean Nathan, regards camping out as the most terrible of modern diversions. While this simply proves that the critic's judgment is pronounced from a mere playgoer's viewpoint—material on camping gathered, most likely, from some movie screen—the fact is that most people, while fascinated with the idea, regard it as something which only the elect can do with any degree of comfort.

Camping out is a fine art; one of those things that are worth doing well if done at all. It is quite easy to bungle it, and so sentence yourself to a variety of nuisances from which you are normally shielded by the bulwarks of civilisation. It is also very easy to do it right; the formulas are few and simple, and camping with a modern equipment involves really so little deviation from civilised standards of existence that it is well worth learning. Living for a while in some wild beauty spot under canvas, close to the busy life of nature, steeped in the ozone of the forest air, is

an æsthetic enjoyment, relished the more keenly the more intellectually inclined is the normal bent of the camper-out. If you have a flair for nature study,—trees, botany, birds, outdoor photography —or, if you want to indulge in the sterner sports of angling for gamy fish, wingshooting for wildfowl and the game birds of the wilderness, or hunting the big game that abounds,—to camp right on the ground and live the life of the woodsman for a while is by far a better solution than to attempt some fisherman's boarding house, hunter's "camp" or other form of quasi-hotel life, in which your companions are not of your own choosing.

Within the limits of this chapter, I shall not take up any of your time in going into the thousands of ways of camping out which are either obsolete, impractical or belonging to the specialty of hunter's and explorer's camping, where a certain amount of hardship is endured as a matter of course. Having camped for more than thirty years, at first several times a year, later once a month every month in the year, and, at present writing, once a week throughout all but the extreme winter months, I have had the opportunity to test and observe and experiment with camping outfits for various purposes, and so take the keenest pleasure in prescribing for you, as it were, an

outfit that would best suit the outdoor lover who wants to try a few weeks of it with some assurance that he and his family will have reasonable comfort, cleanliness and enjoyment without being forced to transport into the forest a van load of impedimenta.

You will desire, to begin with, to look well and properly dressed when taking your outing; to look the part, so to speak, so that you will command respect in place of derision wherever you may be. Good camping clothes are becoming both for the male and female of the species, and your backwoods yokel recognises them at sight and tips his hat to you instead of visiting contumely upon you as he surely will if you appear before him in a gipsy assortment of odds and ends of old clothes. Your camping togs should withstand wear, rain, briars and scraggs, mud and swampy duff with equal impunity. An olive drab flannel shirt, army breeches of the same colour in wool, both electro-waterproofed; grey wool socks (two pairs worn at a time), cruiser moccasins with tap and heel of about 14 inches height; belt; silk tie; and Stetson broad-rimmed hat, will make a sprack, natty camper of you, as good to look at as any army officer, and as practically dressed to the service as he. I have caught bass in a driving thunderstorm in

this rig, right after wading through hundreds of yards of wet ferns, and was not in the least wet inwardly. No khaki or old clothes would protect you in such case, in the slightest. A sweater coat, with high collar, and a light rubber raincoat that will fold into your pocket, will serve to keep you warm in the chill night air of the forest, or during a raw spell of northeast weather. Omit the fantastic bandana—it always appears to us old-timers as just a bit too-too-ey; out of place, except in the West where it has a real use, that of keeping alkali and dust out of your neck. Such an outfit of clothing will cost about $50 and is worth it, for it will last forever.

For the outdoor girl, in summer she does very well with a khaki skirt, bloomers, Norfolk jacket smartly tailored, khaki shirtwaist with half a dozen khaki collars; an extra wool shirtwaist for cold spells; and a sweater or Mackinaw coat. On her feet, a pair of lady's high hunting boots, of about sixteen inch height, with one pair of wool socks worn. A becoming felt hat and tie, and a belt with Norwegian fishing knife in its sheath, complete her toilette, except for a pair of buckskin gloves with cuffs, which she will wear when paddling in cold spells, about camp at night, etc. Such an outfit was worn by my better half during our

120-mile canoe trip across the Adirondacks last summer, omitting the Mackinaw coat. The latter, plus a divided skirt and Norfolk jacket of English tweed, went with her on a 150-mile saddle trip across the Rockies in snowy weather, and the two outfits serve her for winter and summer outings. The khaki suit costs $10 and the tweed $50, boots, hat and sweater coat about $25 more, but she will look right and feel becomingly dressed, which is worth more to her than much game and many fish.

For a tent you want something light, rain proof and insect proof; high enough to stand up in, and well enough ventilated to keep cool in the daytime. Of all shapes I think the so-called "snow tent" is the easiest to put up, lightest for the amount of space, and most comfortable for general camping. A picture of it is shown here to save detailed description. It wants a large window in the rear, with gauze filling and a canvas dormer over it to close down in stormy weather, a veranda to be guyed out in front so you can build a cook fire in front of the tent door when it is raining, and an oval door with high sill, the same well filled with gauze. The sill is needful to keep dirt and sand from being tracked inside, and the window not only to give you a view both ways when inside the tent, but to provide a current of air through the

tent to keep it from getting as hot as a bake oven in the daytime. It should have a sod cloth, but not a ground cloth, the latter making the tent unnecessarily heavy and being awkward in case your only available terrain has some uncompromising stump or boulder or root occupying a part of your floor space. This happens too often in picking a new camp site in a wild country to make the floor cloth anything but a nuisance, for it will not go over the obstruction gracefully, causing the tent to go up out of shape. The snow tent is 7 x 7 feet for a man and his wife, weighs about 6 lbs. in modern light fabrics, and the peak should be about eight feet high. It is put up with ten pegs, a bridle and club, and a pair of shears.

My own tent for this sort of camping is a modification of the snow tent called the "Handy" tent. It is 6 x 6 feet high, with an 18 inch wall around three sides and is put up with 12 pegs and a single pole instead of a bridle and shears. The gauze for window and door should be of fine écru scrim, as anything larger will not keep out punkies and midges, in which some forests, particularly the Adirondacks, abound. They usually drive the party indoors soon after sundown, when you take your electric flasher and locate and calmly murder every black fly, midge, mosquito

and other pest that has gotten inside during the day, after which you can enjoy a night's peaceful sleep.

In spite of all that has been written about browse beds, stick beds, stretcher beds and the like, I feel that the light folding tent cot is the best for general camping. The Westgard cot, for example, weighs but eleven pounds and is set up in a jiffy, whereas to make a browse or stretcher bed takes a lot of time and work when you had rather be loafing and smoking. We generally take the Westgard for my wife and no cot at all for me, to save weight on canoe trips where there are long portages. A few spruce boughs serve me very well, and are collected quickly with a hatchet off the nearest spruce, with maybe a topping of balsam. When alone, I take a stretcher bed, weighing 1½ lbs., and cut my own poles for it, which poles also form the framework for the tent tarpaulin; but where we can get our things carried for us, by boat, team, canoe or toboggan, we take along two cots. These tent cots are cold to sleep on at night unless you take the trouble to collect enough dry leaves or pine needles or fresh balsam or pine sprays to make a sort of mattress about an inch thick on the cot, when it will be warm and comfortable. Without it you will be cold, even in

a sharp night in June, and that with the warmest of sleeping bags or blankets!

For sleeping bed clothes, the outfitters seem so stubborn about insisting on heavy or else very expensive sleeping bags that we have been forced to devise a comfortable yet light quilt bag, home-made of brown sateen and Australian wool bats, which you can get at any department store for 17 cents a bat. The sateen is thirty inches wide, and you will need eight yards of it. Cut off four yards, spread out six bats to cover six feet of the strip, and fold the remaining six feet over on top of the bats. Hem and quilt to make a brown wool quilt, 30 inches wide by six feet long. Do the same with the other four yards, and then sew the two quilts into a bag, six feet long by thirty inches wide, open at the top and down one side for about two feet. Anybody that can run a sewing machine can make this bag and it will weigh 3½ lbs., cost $5, and be warm when ice is forming in the camp pails. The same thing, sewed up in fur, is the best bet for winter camping. My wife and daughter both use these wool quilt bags in all their camping, while I and my son use packsack sleeping bags, a contrivance devised by me to be a packsack by day and a sleeping bag at night. It is the ideal hiker's sleeping rig, but takes some

time at night to lace up as a bag, and again, to lace up in the morning as a pack.

For a cooking outfit, there is no need to go further than the nesting aluminum outfits sold by the sporting goods houses. These come in sets for parties of from two to ten people. You will need three pails, a fry pan and a baker, all in aluminum, as this metal will not scorch food over the camp fire because it has three times the conductivity of steel and so distributes the heat instead of localising it over some camp fire flame and causing a hot scorching spot, as steel is always doing. Get your own table set; enamelware for both plates and cups, as aluminum is no good for either, since its great conductivity makes the cup rim too hot to drink out of and steals all the heat from your food when it is on the plate. Get a cheap yet "homey" set of knives, forks and spoons for the table service, and take along a packet of paper napkins, so as to eat your meals like a human being.

You will need a baker, and the one I use for small parties is a reformed aluminum fry pan, with cover and folding handle. This is oval in shape, about 9 inches long by 7 wide, and 1½ inches deep, and was intended by its maker for a fry pan, but a worse one could not possibly have

been devised. However, it makes a "star" baker, light and compact, just right for two, or three at a pinch. Put your corn bread batter or biscuits in the pan, on with the cover and fold over the handle until it snaps fast, then set in a hot place high over a bed of glowing coals, capsize when risen and bake the other side, and you will have a fine cake, or the best rolls or biscuits you ever put in your mouth! My wife and I, who go everywhere together, as befits two chums in love for the last twenty years, take on our trips two nesting pails, a fry pan, a mixing pan, and the baker, and find this cook outfit ample.

It may cause a shudder to go through you to learn that camping out, as sensibly done, requires but two meals a day, but it is a most solid fact. In city life we eat too much and do not digest half of what we eat. In camp your digestion does much better, and two meals a day are ample. The Indian, who is the greatest camper of us all, has a saying that "No man can eat meat more than twice from sun to sun and yet remain healthy in mind and body," and it is absolutely true. In two days in the woods you will begin to realise this unless an intestinal upset and a sick headache from too much eating has not already told you so. Chum and I usually begin our day with a plunge

in the lake about eight o'clock, a real swim, lasting maybe an hour. Then we cook up a hearty breakfast of coffee, fish, potatoes, bread and fruit. The dishes for this are washed and the cuisine put away in some ten minutes' time, after which we spend the mid-day painting and writing music, for she is an artist by profession and my hobby is composition for the organ. About four o'clock we cook up a great feed, of meat stew, rice, tea, a canned vegetable, dried fruit stewed in a pot-pourri and biscuits or rye bread (which keeps fresh a long while in camp), after which the lake has quieted down, sunset has begun and the bass and pike are out feeding. We then sally forth in the canoe and fish until dark, catching all we need and enough to give away to neighbours. Then a small camp fire, and to bed by nine. If I am out hunting or fishing at dawn, I grab a cup of coffee and a hunk of bread and set forth before the sun, arriving back at camp by eight or nine, when the hunting and fishing for the day is over, and then the same régime is followed. On the trail two meals a day, with a light cold snack and a pipe at noon, are all that are permissible for either canoeing or horseback travelling. It takes two hours at least to cook, eat and clean up after a meal

when you have to unpack and pack things for travelling, and it just isn't done!

For camp food the best in the long run are the sensible home foods instead of prepared and "doped" concentrated things sold for explorer's use. You are not on an Arctic trip, nor yet discovering a new way up Mount McKinley, so why endure these rations? I even take potatoes, if transportation permits them, and a few canned things. Most of your stuff is, however, light, raw materials, rice, flour, corn meal, coffee, tea, etc., which add to themselves from two to six times their weight of water from the spring in cooking. They are best carried in waterproof paraffin muslin bags, and friction top tins, the whole in a side opening food bag with pockets, so that when you hang it up by the fire on a couple of stakes everything you want is right in sight. Such a bag goes with us on all our trips except lone hikes for hunting and fishing, where a knapsack carries all one's worldly possessions. Our usual grub list is displayed on p. 218. The eggs we carry are broken into a friction top tin, 3 inches diameter by 5 high, which will hold fourteen.

For trail accessories—you need steering here more than anywhere else—the aim is to not leave the essentials behind and to leave out the non-

essentials as the way these latter pile up in weight and bulk is past understanding until you try it. You need one light axe, a Damascus steel belt axe or a Hudson's Bay axe with long handle, depending on whether you expect to do much chopping or not. Either will weigh about 2 lbs. and cost some $2.50. A hunting knife; the Tatronife and the Marble Guide's Special are two very good ones, costing about $1.50. An electric flasher; the handiest tool in the dark you ever put in your pocket, costs 50 cents. A candle lantern; fine in the tent, good out of doors and not so likely to get out of order as a carbide. The latter, however, is essential for large parties where a lot of light is wanted. Cost of lantern, folding, in aluminum, $2.50. A night hood, or night cap, of wool or pontiac; on cold nights you must have it, to sleep comfortably, as your hat is a poor substitute. Night socks; a pair of warm, woolly ones, especially reserved and kept bone dry for that purpose. Do not go out at night with them on or they will get damp and give you cold feet. Better endure bare feet, as these quickly dry, which the socks do not. Cooking gloves; cost, ten cents at any department store in the hardware department, save burnt fingers, dirty paws, cold hands, and enable you to pick up hot pails and firebrands

with impunity. A light wire grate; better than any makeshift of logs, and will save many a scorched dish. A sewing kit, the smaller the better, but well provided with buttons, safety pins, and needles and thread for both clothes and moccasins. The one sold for the army boys for 85 cents is a good one. A toilet kit of about the same size; has tooth brush and paste, razor and soap, looking glass and wash rag, also towel. A folding canvas basin for washing; that hasty rinse in the brook will not do the business, and soon you begin to long for a tub; better try hot water in that canvas basin and get really washed and refreshed. A folding canvas bucket to carry spring water and have it handy in camp; springs are not found behind every bush in the woods, and lake and brook waters are dangerous and medicinal. A yard of cheesecloth to keep your meat and fish cold in; hang, tied up in the cheesecloth, in the shade and turn a cup of water over it several times a day. Proof against blow flies and the coldest way to keep meat in summer, unless the spring is near enough to camp to permit building a spring house. A light, compact medicine kit; take along pills for constipation, diarrhœa, fever, colds, and headaches, antiseptic solutions, and a little surgical tape and bandages. Don't take too much or

too bulky a kit, for you will probably not use it at all. Fly dope and a head net; particularly in the North woods where they have seven kinds of biting and stinging insects. A compass and a waterproof match safe; both always on you, the compass in the watch pocket of your breeches, without having on which you are not likely to fare forth! Maps, in a leatheroid case; a fly book and a leather tackle bag to prevent the hooks from penetrating through and ruining clothing; a compact camera with roll film; and, finally, a carry-all to hold nearly all these things. This may be a pocket-bag of khaki, opening out flat, with tapes to hang it up on two stakes at the head of your bed, where everything is ready to hand in its own pocket when wanted, and, what is more essential, returned when done with, so as not to get lost. You will further need a wire-cloth stick mop for dish washing, a dish towl and a small piece of kitchen soap.

These are about all; there are at least a million other things that you would like to take, or are convinced that you would not be happy without, but go light on them, for the list is weighty and bulky enough as it is, as you will find when you come to portage it.

Two other suggestions occur. One is a camp

box, in which you can put the whole outfit and check it to your destination. The baggage rules regard a box as a trunk if it is provided with rope handles and a lock and hinges, and it will be so accepted for checking by the baggage men. Otherwise, it is a parcel and must be expressed. If you make such a box you will save lugging and chasing up a lot of more or less vulnerable camp duffle bags, none of which can be lost with impunity. A box saves all this, besides making a fine camp table, and, once the forwarder has it and you have his check in pocket you can give it no further anxiety. Send it on well ahead, for if sent for the same train you are on it will most likely not be there when you get off at the jumping-off place, and "the next train will be up next day," as the factotum assures you as he locks up the station and leaves you alone in a howling wilderness, with a lumberjack's hotel as the sole refuge for twenty-four hours! Sooner than take such a risk, better lug all your stuff on the train with the aid of porters and Pullman employés.

The second suggestion is the camp stove. It is a great comfort in cold, snowy weather, and a nice thing to cook on in your tent in bad summer weather. The outfitters make them absurdly heavy, about ten pounds weight for a one-hole

A DAN BEARD TENT AND FOLDING CAMP FURNITURE

THE MORNING WASH — FOLDING CANVAS BASIN

stove; but we have one home-made in 28-ga. sheet iron, two-hole, weighing but two and three-quarter pounds. We always take it in fall and winter camping. I do not like the idea of the pipe going up through the roof; better let it out on the side, with an elbow to turn it up, which elbow is not a formidable matter if made like a tin can with a large hole in one side. We use two two-foot joints of 2-inch pipe for our stove, and pack the meat in the lengths, rolled up in paraffined paper so that no space is lost. I even take this stove on back-pack trips, and the whole cook kit packs inside it. Our "Handy" tent has a pipe hole in its wall for just this stove, and for that reason also, a ground cloth is omitted, as such a thing is impossible when a stove is to be set up inside the tent. To manage a tent stove without filling the tent with smoke, you simply need a hot column of air in the pipe, without which it will not draw no matter how tall, and with which it will draw like a major if only two feet high. To get this hot column you must have the fire well started, with lids off and flames rising direct; when well going, clamp on lid and the flames will burst out under the lids, finally finding the chimney outlet, up which they rush, and your draft is established. Never load on too much raw wood at a time; it

will make more smoke than the chimney can carry off. The aim is a bed of live coals and a few billets in process of combustion. If it starts smoking around the lids, open up and get the fire flaming again if you have to make a human bellows of yourself to do so. A two-hole stove is the only one to get a meal on. One can manage a breakfast tolerably with a one-holer, but never a real outdoorsman's breakfast! At night one or two large oak billets, put on a bed of coals, will smoulder all night, keeping the chill off the tent; all drafts should be closed to aid in this gradual charcoalising process.

Of outdoor fires you will need to know three styles. The backlog fire is the best night heater. Cut five 4-inch red oak logs about a yard long each and pile them one above the other against two hornbeam stakes leaning somewhat backwards. Cut two short billets or andirons, and stake in place with a forestick across the front to hold the fire in bounds. Make a general fire in this grate, on the andirons as you would at home, and you will find that most of your heat will be reflected right into the tent from the backlogs instead of being dissipated into the forest as in the bonfire type of camp fire. The remains next morning are fine for a breakfast fire. A grid fire of blackjack

oak is the best fire for your wire grate, and, if using a reflector baker, either keep a high, flaming billet resting on the edge of the wire grate or build a special fire for it of small backlogs about two feet long laid in between two pairs of upright stakes. Against this build a high fire, with the sticks laid up against the logs so as to produce a hot, high flame that will brown both top and bottom of the bread at the same time. For fire woods, except the last fire described, use only hot-coal woods, blackjack oak, red maple, ash, hickory and yellow birch. Reject all the quick-flaming woods, such as pine, and balsam, as these are neither hot nor last long, and never use popping woods, like hemlock, if you have any regard for your tent roof.

With these few reflections on outfit we will conclude. It would be useless to attempt to tell you the hundreds of kinks that suggest themselves to all campers in the woods, as each man will pick them up for himself as he goes along. I have described you a light, comfortable outfit, and one in which I trust no essential is lacking. The outfit is not cheap; but is cheaper in the long run than a heavy inadequate lot of junk, and you will not want to make a bore of your outing, when any ex-

perienced man will assure you that, if done right, camping out is the best fun in the world.

I take the children along on a great many camps, but your better half will prefer the trip as a sort of honeymoon, with a vacation from the children as one of the main attractions. If you take the kids, your work will be easily doubled, and cooking becomes a serious subject unless they are grown up to their 'teens, as, thank Heaven, mine are! By that time they will go generally with their own friends, but if they go with you, better leave the madam out and give a lot of your own time to running the camp, for a camp of kids is a sort of outdoor crèche, where the male incumbent cooks, catches bait, instructs the young idea, sees that they do not get lost or drowned, and regulates the day so that it is not all play. A camp is a kid's paradise, and the dear creatures will impose on the grown-ups out of all measure if you try to give them all the swimming, boating, canoeing and fishing that they want to crowd into each and every day!

CHAPTER VII

HORSEBACK CAMPING

I'll admit that Joan and I are hopelessly old-fashioned. We have children, and dogs, and cats, and chickens, and pigeons—and a horse! Our "garage" is a sassy little stable, built by the Kid and I some time back; no evil-smelling car lurks in its depths, no stench of gasoline and machine oil greets your nostrils when you open its doors. Rather, it is the sweet incense of old-time hay, the clean smell of new straw, the healthful odours of oats and bran that fill the air you breathe; and there, greeting you of a morning with affectionate whinny, is a real live car, finished in glossy chestnut brown, with furry ears that prick forward expectant of his morning meal of oats, and with soft brown eyes that look to you as a friend and a chum. Around your feet crowd an eager flock of hens, supervised by Admiral Dewey (who licked Captain Kidd, who licked Wattles, who licked Chanticleer, who licked Colonel Heezaliar)—the survival of a fighting line of roosters—and all

over your shoulders and the eaves of the barn fly the homing pigeons intent on their share of the morning's breakfast.

I confess to a liking for all these reminders of a bye-gone and more gracious Republic than the hustling, roaring empire that is now America. I like my good friend the blacksmith, who shoes my horse once a month; I like to poke around his ruddy furnace and muss around the horses that await his sturdy arm; and I like him all the better because he shoots beside me at the gun club and occasionally lets me in on a hunt with his farmer friends in the hinterland of our section. The smell of hay in the barn touches responsive chords of my memory, and, like the smell of box, recalls the stately days of long ago, before the telephone was the household tyrant, the bicycle and car had annihilated distance (and at the same time everything contained in that distance) and Rubber had become King in the modern household. With the first whiff of gasoline dies Romance, like a butterfly under its pitiless poison; and with it dies leisure, the liking for quiet thought, the perusal of books that are worth while.

The supreme dignity of the old-style home was the horse. Just to see one now, or a fine team and carriage, is a relief after oceans of vulgar flivvers,

carrying you know not what cargo of rascality. And to the sportsman the ownership of a horse is a double blessing—I dearly wish that I could adequately tell what my horse has meant to me! He makes your home territory a happy hunting ground, taking you into intimate wildernesses that are forever forbidden the car; he keeps you freshly in touch with Mother Nature for he fits into her scheme, not antagonises it, and, whether he is drawing the family to school and the madam to market, or giving her a fine ride in the forest of an afternoon, or whether he is enabling you to take a refreshing gallop in the early scented morning hours before business, he is always the same, always a prince of joy, at every one's beck and call. For, unlike the car, he does not require masculine strong-arm cranking, he depends not on oil, gasoline or electricity to make him run, so that your youngest child may enjoy him unafraid, and, best of all to me, his gear makes you handle honest old leather, in place of leatherine or some other rubberised imitation as dead as the car it is upholstered on.

Not only in your home life, but in your trip after big game is the friendship of the horse essential to the sportsman. There, in the mighty ranges of the West, the car is quite impossible,

and you and your horse are the whole transportation scheme. I have devoted before considerable space in this book to the pack horse and saddle horse knowledge that every hunter should have when undertaking a trip to the Rockies for big game. Herein I propose to supplement that with such intimate and practical detail as will enable any sportsman to decide for himself whether to have a horse or not, how to take care of him in his daily life, and how to select and manage all the equipment that horseback riding has found essential.

To begin with the cost: A good saddle horse, of around 1,100 lbs. weight and fifteen hands height, will eat about $12 worth of oats, hay and bran a month. This is on the supposition that he will be driven about two hours a day and ridden a like period of time. Such work will call for six quarts of oats a day, in three feeds, and two mangers full of hay, morning and night. Trade horses, which are on the go all day, require much more, a large work horse needing all of twelve quarts of oats, but this does not apply to a gentleman's horse, used for pleasure and the daily errand to town. Mine is hitched up every morning at eight, drives me to the train, the children to school, and continues on to take Joan to market,

HORSEBACK CAMPING—THE ARMY SADDLE
AND SADDLE BAGS

MORNING IN CAMP UNDER THE PINES

returning about 10:30 in the morning. In the afternoon he takes Joan for a two-hour ride on horseback in the forest, and in the evening he is again hitched up and driven to meet me at the station, after which he is fed and put to bed for the night. At present prices, a 100-lb. bag of oats costs $2.25; of bran, $2.50, and a 225-lb. bale of hay costs $2.75. Two bags of oats last him a month, ditto bales of hay, and also half a bag of bran, of which he gets at evening a two-quart feed three times a week. One bale of straw every month serves him for bedding and costs about $1.50. This is all the expense, and in our case he repays it alone in the saving of household bills from marketing instead of ordering over the telephone, where the price is always 20 per cent higher for delivered groceries and the quality the worst left over in the store. All the rest of Billy, the Horse, is chargeable to pure pleasure. For the wife he is exercise and recreation far beyond the tame pleasures of riding around in a car (even if it *has* a self-starter), and in character it keeps her courageous, capable and self-reliant, since horsemanship requires the constant exercise of these faculties. For the man of the house, the account runs to healthful exercise in the finest hour of the morning, bits of hunting and fishing

that would have to be passed over in favour of business otherwise, and, at week-ends, horseback camping trips which are in a class by themselves as outdoor recreation.

When I decided in favor of a horse instead of a car, our barn had been built for several years, with a capacity for being either garage or stable. It had a floor space of 14 by 18 feet, which will hold *both* a horse and a tin lizzie if the latter is about 12 feet over all, and, with an eye to either eventuality, I had put in a concrete floor, pitched centrally toward a cast-iron drain fixture. A box stall is by far the best scheme, so this I planned, leaving three feet from its wall to the rear end of the barn for stairs and entrance to the chicken house (which is a 6-foot by 6-foot wing added to the west end of the barn). Allowing 6 by 9 feet for the box stall, I first cut a 4 by 4-inch hole in the concrete floor, to take the foot of the 4 by 4-inch post forming one corner of the stall. The upper end was spiked to one of the rafters of the second floor of the barn. For material of stall sides I chose 1½ by 12-inch yellow pine, dressed both sides. The walls of the stall, four boards high, were spiked at the butt end to the wall of the barn by putting on 2 by 4-inch hemlock nail plates. The west corner required no post, simply

a corner joint with a 2 by 4-inch nail strip, the east corner spiking securely to the 4 by 4-inch post already put in. The entrance to the stall was a gate three feet high, left between the end of the east wall of the stall and the north wall of the barn, the idea of this being to have the horse *facing* the door instead of with his heels to the door, this because I have two active younger children who could reasonably be expected to play around the barn and get in range of his hoofs if the latter were aimed outward where they could kick. This left a four-foot runway across the front wall of the stall (which was four feet high, by the way), so that one had easy and safe access to the chicken house and the upstairs of the barn. It also left me a space of 9 by 14 feet for car or carriage.

I next put in a stall floor of the same sized planks as the walls. A board floor is warm to the horse's body when he lies down, whereas concrete will be cold through any amount of straw; it is easily taken up and cleaned, and it is not hard on their hoofs, while a concrete floor will soon give them sore feet.

We were now ready for Billy, of whom I had heard as belonging to a jolly priest who had been chaplain of a regiment on the Mexican border, and, upon returning North with his horse, was

anxious to dispose of the animal. My old friend Frank Stick and I went down to see the equine wonder, and wonder he proved to be, for he was a handsome, stylish beast, with a fine gallop, a nice canter, ditto single-foot, and a fair trot. Besides which, he proved to be a most well-bred and affectionate animal, of Arab strain, with the arching neck and small, pretty head of that breed; age about eight years, as we could tell by examining his teeth; and his purchase was soon concluded. Such an animal can be bought for from $150 to $250, depending upon conditions, costing much more in the city, where we saw horses not as good offered for $500. You want a nice, cobby animal, not too long in the body, and, for some reason or another, the chestnuts are daintier feeders than other colors, which is another point in their favor.

Frank rode him the forty-five miles from Plainfield, N. J., to Interlaken, and Billy was installed in our barn, where he immediately sampled our hay and oats and found them as good as any he had tasted elsewhere. For some time thereafter we rode him with the McClellan or army saddle only, as we had to learn his ways and that saddle is much safer than the English, though the latter is the only one for general riding. He was Joan's horse, bought with her savings, and she and he

were soon in that dolorous condition known as "in love." They were inseparable, and, after trying all the usual horse tricks on her and finding her more than a match for him, a mutual understanding of perfect affinity was soon established between them. With me he was always man to man, that is, he assumed that, of course, I knew all about galloping at break-neck speed and going around sharp corners without losing my stirrup, and sticking to him when he reared and pawed the air with his front hoofs, and he gave me small sympathy if I could not play the game according to the rules! To this day he will not allow me to open a map on his back, rearing with terror at the flashing thing, and prancing all over the road, in spite of an iron hand holding down his bridle. Otherwise we get along in a state of armed neutrality, and I have many a fine ride on him whenever I get up early enough to do so.

His introduction to the carriage took place a few days after arrival. I picked up a nice, fast-man's two-seat carriage, for it was just the thing for Joan to go to market in, to take the children to school, take me to the station and take herself for a drive. After the first harnessing up it is essential to lead the horse up and down the street until he gets used to the carriage, after a spell of

which you can get in and drive him a little. If not overdone, driving him to carriage will not cause him to forget his riding gaits, and you then have a general family horse.

It was not long before my two older children learned to ride like young centaurs, and, as for Billy, he lived the life of Riley, with plenty to eat, little hard work, and lots of riding through forest trails and up over the sand hills.

For equipment we had to get him a pitchfork, curry-comb, horse brush, feed box, iron manger, blanket, halter, and salt holder. The iron manger cost $1.85, and is a wrought-iron affair, purchasable at any hardware store, forming a sort of corner basket three feet on a side and the same in depth. I mounted it on the west corner of the stall by nailing up a wide 3-foot corner of boards so that the bottom of the manger came down on the top corner of the stall sides. You should keep it full of hay, one filling in the morning, another at noon, perhaps, and a third at night, in general providing him with all he can munch. The salt holder went on the east corner post, and is an iron contrivance which will just hold a horse salt brick. He will need a new one every two months, as he licks it away with his tongue whenever he needs salt, so that it soon looks like a used cake of soap.

The feed-box is a corner iron basin, smooth surfaced and smooth lipped, or it may be just a nice wood box holding two quarts or more of oats and nailed in the corner of the bin.

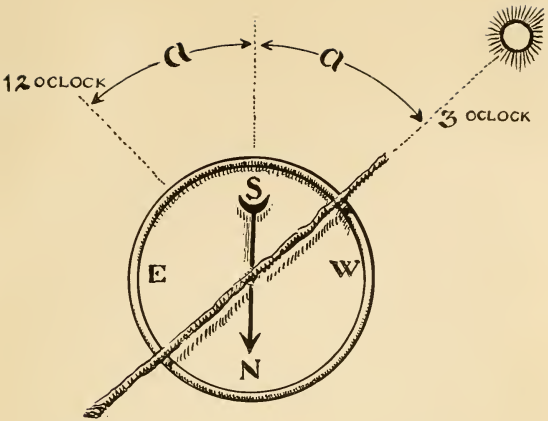
A horse requires lots of water, and will need a large galvanized-iron pail hung in the stall and a smaller one for carrying water with. Do not let water stand in the stall pail nor let it get sour, but air and clean it every few days, or your horse will aptly acquire a stomach-ache.

A barn, planned as such, should have a trap door in the second floor, with a block and falls above for hoisting up hay and straw, which come in 250-lb. bales. We had no such facilities as this, but have solved the difficulty by simply cutting open the bale down on the barn porch and carrying up the hay and straw in sections, impressing a chain of children to pass the stuff along. We can stow a whole bale that way in fifteen minutes, and I think it is less work on the whole than trying to hoist the entire bale. Hay comes layer by layer, bound up with iron wire, and the straw comes in tied bundles, of which one will be wanted each night.

Of actual care a horse will require but little. He does not get sick easily as a dog does, nor is he anything like as much worry as the average

dog. Each morning he requires a good currying, which is the most healthful of exercise, followed by a rubbing down with the horse brush. This, if faithfully done, will keep his coat in prime condition. My eldest boy does this, and cleans out the stall each day for $1 per week, a good way to keep him in pocket money without the charity of an "allowance."

As to saddles and bridles we have three in use, the McClellan for me, the English for the rest of the family, and a Whitman loaned us by a friend. The McClellan has high pommel and cantle and a complete set of rings and brasses on which to fasten the cavalryman's travelling equipment. The English has nothing but a flat pad with plain German silver stirrups hung from stout straps, with a safety catch at the upper end of the stirrup, so that if you fall off the strap will come loose and you will not be dragged with your foot in the stirrup. The Whitman is like the English, only with a higher cantle and air hole in the centre of the pad, and has rings on both cantle and pommel on which to fasten blanket roll or canteen. Such saddles cost from $25 up at the harness shop, or about $10 at second-hand military goods establishments. Bridles will stand you from $6 for a plain single-rein bridle with nickelled steel



TELLING TIME BY THE COMPASS—
TWICE THE ANGLE BETWEEN THE SUN AND SOUTH

JOAN GRAZING THE HORSES NEAR CAMP

bit to $16 for a double-rein bridle with curb and snaffle bits in magnolia metal. An ornamental head strap of coloured enamel leather, costing about 85 cents, adds much to the trig appearance of the bridle. As to bits, there are three varieties, the plain straight bit, little used, the curb bit with a "port" or arch in the centre of the bit which will press up on the roof of horse's mouth when the rein is pulled, and the third type is the snaffle, a straight bit jointed in the centre so as to compress the horse's mouth and lips when strongly pulled. The best of the three for horseback riding is the curb bit, with not too much port, and two reins, one attached at the ends of the bit and used for ordinary riding, and the other rein attached at the lower end of the curb levers, so that when you pull on the reins the port of the bit is rotated to press up against the roof of his mouth and down against the jaw. As the leverage of this combination is very great you can break the jaw of your horse if he is correspondingly stubborn. Bringing the curb into play has the effect of making the horse rise on his hind legs, so that you need either a good knee grip on his withers or a high cantle on the saddle to remain on the horse. The bit itself costs about $6, and is best of some composition metal, as the wrought-iron

and steel ones, however heavily nickel-plated, will in time wear through from the champing of the horse's teeth, exposing the iron to rust and becoming unsightly. A very good complete bridle is the U. S. Cavalry bridle, on sale at the second-hand military dealer's for about $3. This has fine quality leather reins and head stall, a wrought-iron curb bit heavily nickelled, and, in general, these are condemned only because of change in the regulations and are still in good shape.

So equipped, there is a world of fun ahead of you and your horse. To show a sample of what can be done of a week's end, I will tell here of a saddle camping trip that Joan and I and our two chums, Nicky and Dwight, took. We proposed to penetrate south into the Jersey pine country, taking along our grub, sleeping and tenting outfits and feed for the horses all on the regulation cavalryman's outfit. Enough for a two or three days' trip can be so taken by a party of four, without pack animals. The regulation Army saddle bags cost $1.75 at the military second-hand outfitter's, and the bags each measure fourteen by eighteen inches, and have outside pockets for maps and camera. The back of them is a broad piece of leather, forming a yoke where it goes over the saddle behind the cantle, and it is pro-

vided with a brass-bound hole, through which projects the brass pin on the Army saddle for that purpose; also two brass-bound slots are on the yoke, through which project two U-shaped risers on the cantle, and through these are shoved the bolting straps, thus holding the saddle bag yoke fast to the saddle. A belly strap goes around under the horse, from bottom to bottom of the saddle bags to prevent their flapping, and this must not be cinched tight or the bags will chafe, particularly if you have not been careful to keep all hard-ended articles like cans, etc., away from the rear leather facing of the bags, just as you would in packing your own pack. As your horse cannot tell you that the thing hurts, you will not know of it until, on taking off the bags at the end of the day's ride, you find an ugly chafed spot, with all the hair gone. We found it impossible to get any more McClellan saddles at the various riding schools and livery stables, so we had to content ourselves with two English saddles and a Whitman, which, with Billy's Army saddle, sufficed. Dwight and Nicky showed up in camping togs, their bed rolls done up ready for the cantle, and their grub in those old-style black rubberised canvas haversacks of Civil War times. I also bought a pair of these, at fifteen cents each, for

carrying oats, likewise a pair of cavalry canteens for 65 cents, which have a short strap and snap hook for fastening to the pommel rings.

Joan had her wool quilt sleeping bag, done up in a roll, the outside of which was a light 3½-lb. Blizzard tent, besides which she had a sweater for night use, folded lengthwise inside the roll. I had my packsack-sleeping bag, laced up as sleeping bag and rolled into a tight cantle roll, with nothing but a slicker and wool vest for night use inside of it. All the rest of our supplies—cook kit, grub, night socks, Joan's flannel shirt and her toilet kit—all went easily in the two saddle bags, with a camera in one of the pockets and some flat cans of butter and bacon in the other pocket. To outfit Billy for the hike we put on him the two saddle bags, my bed roll, two canteens on the pommel rings, and a halter and lariat for corral-making, lashed across the front of the pommel. Billy's blanket for night use went folded under his saddle on top of the usual pad. The Whitman saddle was easy to manage, for it had three rings on the cantle and two on the pommel, and Nicky simply had to secure his bed roll and canteen to the cantle rings and a pair of haversacks containing oats and grub to the pommel rings, and he was ready. Dwight and I had the English sad-

dles, and we rigged them both the same way—we lashed on the bed rolls behind, with thongs running down to the top buckles of the girth bands and hung the haversacks in pairs over the front of the pommel, tying them back to the same buckles of the girth straps. My original scheme of tying these to the top of the stirrup fasteners did not work at all, as it did not produce enough downward pull on the cantle roll so that it would not stay put. We wore nothing hung or draped about us, for the obvious reason that such articles will forever be bouncing about and will hamper one's freedom of movement when riding.

So fitted out, we hit the trail southward, galloping, trotting, and walking the horses down the open roads of the countryside. My nag developed a penchant for keeping on the left-hand side of the road and backing into every automobile that came up behind, nor could she be induced to ride abreast of any other horse, so my first work was to train these faults out of her. I borrowed a spur from Dwight and a quirt from Nicky, and went to it. Soon the Old Man was master, and I had her eating right out of my hand. She had evidently never galloped before in her life, and was too gross and fat for any such agility, but she had a fast wagon trot, so, when they all gal-

loped, I sent her along, reaching out for all she was worth and changing stride every few moments, so I had to re-post to get in swing with her; but, by keeping the quirt whirling (yet never touching her with it) I soon had the fear of God into her and she went right along.

That marvellous character, Nicky, soon developed another admirable trait,—that of fruit-hound. Such a nose for fruit as that boy had, the farms of south Jersey this side of the pines will testify, for he left a desolation in his wake equal to Sherman's through Georgia. Joan and Billy led the march, of course, for one of Billy's fetishes is never to let any other horse pass him! and, as Dwight's mount was a fast one, they were in impromptu races most of the time. Nicky's also had speed and was a good rider, so that bunch kept pretty well together, with me pounding along in the rear on my huge white cart-horse.

After some fifteen miles of farms we at length reached the pines and were soon dashing along through forest roads that led deliciously nowhere in particular, but, so long as they led south, we followed them. Finally we reached the Manasquan River just as the sun was setting in gorgeous autumn colours over its wide waters. A short canter across the upper bridge and a wind-

ing trail through the pines, and we arrived at my old camp site opposite Turkey Point, now revisited after fourteen years. Nothing was changed; the trees were a few shades stouter, the bushes a bit thicker than when I camped here fourteen years ago when writing "Camp Fires of an Epicure" (which all the older readers of *Field and Stream* will recall); otherwise nothing was changed, such is the repose of the wilderness. A high bluff looked out over the Manasquan, and a small brook leading out of a swamp near by supplied water. We cut a long pole and tied it horizontally between two trees for a horse stand, and to it we tethered the cayuses, each with his own halter, while each was given a feed of oats out of an army feed bag by Dwight. I had an old canvas water bucket, which was voted to the horses' use, the saddles were taken off and piled and their blankets dried of sweat before a roaring camp fire. As darkness fell the blankets were thrown over the horses and buckled on, and they were ready for the night. Seldom does a horse lie down on the march; even in their stalls they will sometimes go for several days standing up all night and munching hay. Joan gathered some fresh grass for them from a little clearing in the pines, while I put up our tent between two trees.

Soon the various individual messes were toward —Nicky with his canned alcohol (in a canvas bucket, which promptly caught fire), Dwight and I over beds of coals raked out from the main fire. I set out, for Joan and myself, chops, creamed potatoes, bread and butter, tea and oranges. After which we had the usual two hours of loafing, smoking, singing and story telling before the bright camp fire, so dear to campers, and then to bed at ten. Such a sleep, with the keen northwest wind soughing through the pines!

Next morning we fed and grazed the horses, packed up the outfits and pushed on southward into the pines. Our road finally petered out in a cranberry bog and for two hours we went by map and compass over wonderful pine barrens intersected with cedar swamps and strewn with rich huckleberry patches, at each one of which Nicky was first out of the saddle. Dwight led the way at this time, his long figure, with blue-devil tam-o'-shanter and yellow cavalry scarf, a picture to look upon.

Lunch, in a beautiful pine grove somewhere up on the headwaters of the Metedeconk, and soon thereafter we hit a regular forest road and the horses broke into a gallop. Mile after mile we covered until we rode into Point Pleasant and

crossed the Manasquan again at its lower bridge. This was too much civilisation for Nicky, and, as soon as the bridge was behind us, we sought the forest roads again. Thence into the farm country of the Shark River (you simply *must* keep big bodies of water in mind because horses require bridges to cross) and by sundown we were five miles from home and out in the farming district again. An hour after dark we pulled into the homestead grounds, and tied the horses to trees. They should rest an hour or so before getting any feed or water, but by eight o'clock Billy was up to his ears in oats and hay; and so ended a perfect hike.

Horseback camping is in a class by itself, for pleasure and intimate acquaintance with the country one passes through, without the fatigues of back packing, and my rede to any sportsman who wants the fullest measure of enjoyment of the game lands back of his home is to try the ancient and well-approved plan of owning a horse.

CHAPTER VIII

WILDERNESS GUIDE POSTS

THE fact of getting lost is one of those things that are occasionally thrust on one; but the art of getting found again is not to be acquired, except with considerable intelligent study of the wilderness and its ways. And in no other department of the great outdoors are there so many ancient and hoary superstitions extant as in the printed directions on the art of getting found. The poor novice is told about the moss on the north side of trees (copied from French and English works), as the moss *is* green and prominent on the north side in rainy countries like France, but it certainly isn't here, where in the forest all tree trunks are shaded alike. We learn that it is easy to start a fire with your watch crystal filled with water to make a lens, the author sublimely ignoring the sun's declination, and assuming that a level watch crystal will focus a point instead of a cusp, which it actually does, as the writer would know if he had only tried it. We read how to steer

a line by compass through the woods, when no timber cruiser would think of doing such a thing because of terrain impracticabilities, and so on *ad. lib.* Some one got it into print in a sporting work of the vintage of 1849, and each writer copied him implicitly, without taking the trouble to check up the facts.

Too few real woodsmen, alas! can put pen to papers so that he who reads gets the idea. It is an art born of long experience in the technique of writing. Give the woodsman half an hour in the woods to show you personally, and he will teach you so that you will never forget, but, aside from a few writers who really live in the forest, such authors as Kephart, Gilman, Breck and their kind, we have too little of the lore of the woods written by the woodsmen themselves. The following screed is a humble contribution by one whose experience is far from wide, yet who, too, has the boon of a forest surrounding him all the days of his existence.

The knack of woods travel is partly based on broad rules which can never be violated with impunity, and partly on the ability to make averages. Your guide posts are many, and they consist in little things that to an observant eye are significant, and to the careless one a sealed book. Your

true woodsman has his guide posts all about him and is never at a loss for signs of direction. If they are absent he begins to worry, nor is he at ease until they are his again. The novice tries to follow out to the letter the things he remembers reading in a book; the woodsman passes sublimely over a dozen printed rules for every mile that he travels. For example, you rarely see a lost woodsman attempting to follow a brook, even when he knows it is going where he wants to arrive. He may keep in touch with it, but, follow it—never! Why? Because he is sticking to one of the big broad rules that you cannot break with impunity, and that one is to keep to high ground when travelling a trailless woods. He knows that even a wide detour will pay, in the long run, because brook bottoms, swamps and other low ground, where vegetation is thick and vines numerous, spell hard going and slow progress. When you are just mooching along, headed for a lake in the forest six miles away to the northwest, you do not set a compass course and steer yourself by it like a ship. That is sure to drag you through swamps, force you to scale precipices and run you into windfalls and scraggs without number, for all these things are plentiful in any six miles of wooded and hilly country in which your feet

may find themselves. In making such a trip the compass or a sun bearing is essential, and, having laid it, your first care will not be to start out in that direction, but rather to pick out a prominent *landmark* in that direction, as far ahead as you can see. Anything will do: a ridge of cedars, a bold escarpment of rocks, a notable dead or large tree—something prominent and easily recognised is what is wanted, and then you set out to travel to *it*. When you arrive there it will be time to pick out something else ahead on your bearing line, for you will be on your direct course again.

All right; this lake that we have set out for is six miles off, and from where we stand it must be beyond that third range of green ridges which look so distant and far away from here. Six miles is considerable distance, and a lot of things can be packed in between. Here is a valley below us to cross, and yonder is a lone pine nearly on the northwest bearing line as we sight it over our compass. What is the easiest way to cross this valley? At once we lose immediate interest in that tiny distant tree, and concentrate on a campaign to cross the valley. To plunge right down will land us in that swamp below, which is an excellent place to get lost in, but, by skirting along this flank to the right we see a low saddle which

looks as if it would get us over easiest. And so, an hour later, we are standing at the foot of our pine. Nothing ahead but trees for a bit, but, by running a line across this promontory of timber we shall come out where the land falls away again and can get a look-see. To cross it true and fair to the northwest, we spot a blazed tree, a crooked one, a dead one, any old tree so long as it is recognisable from the others on our bearing line, just as far ahead as we can see through the timber, and walk to it. Then another, and so on until at last the ground begins to fall. Now we cannot see anything, as the tree-tops below are in the way. Look for a jut-out rock near by; if no-can-do, look for a windfall, or the easiest tree to climb, and up we go, for it is essential not to go down into the valley below without a bearing lookout across to something recognisable on our line ahead. Yes, sir, the shinny is the thing—what's the word, aloft? There's a bare spot with a bold rock escarpment on the line on the ridge opposite (or maybe it's a quarter mile to one side it and we can correct when we get there), and there's a small pond in the valley below. Which end shall we go around? Swamp at both ends; all right, take the upper, it'll be the less pestiferous, unless the pond has a backwater. If it has,

better chance the lower end, as it may work out through a natural dam and we will have only a narrow ravine to face. And so we descend, and for the next hour we are busy in getting across, only keeping a general N. W. direction in mind.

Arrived at the ridge we soon locate the bare spot and are ready for the next adventure. A reconnaissance shows a wide plain of brush forest, intersected with brooks and ravines ahead, and beyond that another blue ridge, beyond which *must* be the lake, for it is about six miles from our starting point and we have come about three so far. By skirting the ridge we are on we can gain part of the way on high ground, after which we must plunge down into the low ground; so while we are up here let's make a rough map of it and pick out the likely going, for it will be easy to get lost and off our line down there. And, finally, we spot a landmark on the distant ridge near the bearing line, for we will want to look for it later. A little pencil sketch of that ridge will help some when we come to look at it closer, for it is easy to forget—at least one member of the party is sure to and put up an argument, and the only thing for a stubborn man who is wrong is a sketch or a map made on the spot to show him later.

Even a mountain flank is full of ravines and

temptations to work downhill, and this you counteract by the general rule of taking the higher of two given courses that present themselves, unless there happens to be some very good reason to the contrary. In the low country keep to the better going as much as you can, and lay little courses to cross cedar swamps and the like, for in there you will not be able to see twenty yards ahead. A compass or the sun is invaluable here. Once I paralleled a stream down the swamp along its side for nearly an hour, under the leadership of a native guide, and when he finally gave it up I led him out in ten minutes by compass, simply setting my course at right angles to the known general direction of the stream. When I first set out he thought I was wild and refused to follow, and so I left him there, hallooing him out when I struck high ground.

To return to our lake hunt; when you get to the slopes of the distant ridge, better climb a tree or a knoll to get a good look at it close up or there will be nothing recognisable on it as you ascend until you are nearly at the top, when it may be too late to find your bearing landmark. Once there the rest is plain sailing; up over the ridge, and then look for the white mirror of the lake be-

BLAZED STAKE, THE BEST IN ROCKY COUNTRY

LOB-TREE, MARKING PORTAGE OR BEGINNING OF FOREST TRAIL

CACHE OR TRAP BLAZE

CORNER BLAZE AT TURN OF TRAIL

low, for it should be by now in plain sight from any outlook point.

Such is woods travel by compass; how about it without a compass?

The pert answer is, of course, that experienced woodsmen do not travel without compasses. Quite so; not willingly; but then it sometimes gets left in camp, unless you carry it in your trousers watch pocket as I always do, for many's the time I have gotten off for the day's hunt to find the compass left behind in Mackinaw or vest pocket, either of which garments are quite often left in camp, depending on the weather conditions. Even with the sun shining it is not all roses to cruise without a compass. Old Sol looks different at different seasons of the year, and, in midwinter you need to know the time accurately to steer by him at all. During the hunting months of October and November the sun is well south and has a very low arc, with maximum declination so that he really only travels from S. E. to S. W. during the part of the day when he is visible above the trees. I've seen a whole party in November steer nearly south at ten in the morning in the misunderstanding that they were steering nearly east because they were travelling into the sun. The compass soon showed them that they were

travelling only a few points to the east of south. During the fishing months the sun is in the east around six to seven A. M., and describes a great arc overhead during the day, being nearly vertically overhead at noon, and this is the only time that it would be possible to start a fire with your watch crystal. You can then tilt it enough to get the face normal to the sun and focus the rays in a hot point. It may be hot enough to then start a fire—I've never tried it then—but I *do* know that any other time of the year the rays form a *cusp,* with a point hardly warm to the hand, and that if you try to tip it so as to get the rays concentrated into a single point the water will be tipped out of your crystal. However, I never have a watch in camp, and if I needed a fire by sun glass would most certainly unscrew my camera lens and have one!

When you have one of those grey days and have the adventure of getting lost, the first thing to find is a landmark that you can recognise. Get to a high point and take a look-see, for you may pick up something that you know of old and then set sails for it, when all will be lovely again. Failing in this, the first thing to find is, not north, but south. Nature does not seem to be interested in pointing out north to any one, but Old Sol has

left many traces of where he *has* shone and where he has not. In the dense forest there has been no sun; everything is shade—north, east, south and west alike—so look up, first of all, a cleared spot, a mountain meadow or the bed of a brook. Weeds will be thick on the south side of boulders, and scrawny or absent on the north. Moss will be green on the north side and burnt on the south of brook boulders, and all vegetation will be thick where the sun has shone hotly, and scanty where the shade has been. Averaging up a lot of these will give you some tolerable suspicions as to where south is located. Then verify by the wind. In the eastern states grey days are when the wind is northeast or southeast, and thundershowers overcasting the sky when the wind is southwest; if northwest it will be sunny, sharp and cold, and will not change during a temporary overcasting of the sky. The wind should check up with the shady and sunny spot indications. Then come the trees; a sweet gum will have its burrs strewn to the northeast of the parent tree, and a flock of little ones will be growing up in the area northeast of the tree. Hemlocks generally have their tips to the northeast; both trees for the same reasons, viz., that the prevailing summer wind is southwest. Some time spent in averaging up in-

dications will give you enough certainty of south to go on; and, having settled on it, do not rush off and lose it again (for, once lost, you can lose your sense of direction again in twenty minutes), but locate a prominent landmark, and when you feel in doubt again look for the landmark—a mountain head, a peculiar range, anything high and conspicuous, no matter what its bearing.

Man himself has left a lot of wilderness sign posts, the best known of them being the blazed trail. In general they are laid out by blazing trees with the axe, each blaze being easily seen from the last one; but do not imagine that they will be like a lot of lamp posts on a street. The man who made them proceeded in this way: He wanted to get along in a certain direction, and he went partly by compass, partly by the woods sense of taking the easiest possible course and keeping along at about the same level. As he made each blaze, he spotted another tree ahead in the line he wanted to go, walked to it and made another blaze. Some of them only look one way; most of them are double-blazed, so as to be readable either way from the same trees, and some of them are blazed on different trees when coming from the opposite direction. In following them, therefore, do not abandon a blaze until you have located the next

one, and do not take a piece of spalled bark for a blaze, nor kid yourself into thinking that the woodsman used any spalled bark marks in laying out *his* line, for without the axe mark a blaze is no good. To mark a cache, a trap or a turn or angle in the trail, two blazes, one below the other, are the general indication, but examine these with common sense, for one of them may be merely an imperfect blaze and the other the only one the forester wanted to make. When you get to stony ground, as often happens in mountain trails that rise occasionally above timber line, one style of marking, and the best, is the blazed stake. Not so good because not so easily discerned, is the stone cairn; and at the turns, there will be two of them laid cornerwise. Seldom do you see a single stone or two of them one atop the other, as shown in the books, as these are too hard to locate and too apt to be a happenstance. On the prairie the trail, even if very faint, can be located by the different appearance of grass from an untrodden stretch of bunch grass. If even two horses have passed that way you will know it by a glance along the line of the trail; a faint but unmistakable trail has already been formed. Occasionally, to be sure of it, the weeds are bunched and the tips tied in a knot, so you can be sure it was the work of man's

hands. Blazing a tree or bush along the prairie trail is better, for there are plenty of them about, and a blazed or lopped bush is conspicuous a long way off.

For wilderness signals, three of anything means Lost! or Danger! Help! Three gunshots, three smudges, three fires at night mean some one lost or in trouble with broken leg or ankle, and you to the rescue, as you may need to make one of these signals yourself some day. The cowboy yell or halloo carries a good way, and is, of course, your first recourse before wasting any ammunition, and, if you have a shotgun, you can blow a moot of the horn on it that can be heard a long way off. All Southerners know this trick. The gun is emptied, and, with the lips over the muzzle, a typical bugle blast is blown. It gives a penetrating moot, very like that of the horn, and any one that can blow a horn can blow a gun barrel.

It might not seem that star knowledge is very necessary to a woodsman, but it is a fact that you need to know at least half a dozen constellations as night guide posts. I have travelled four miles through the Southern cane brakes at night by compass and carbide lamps, striking a road near camp only a few hundred yards above camp at the end of the march. We travelled by avoiding the cy-

press swamps at the expense of several long detours. Every one was lost, niggers and whites alike, but the compasses brought us out all right. We picked out dark extra-black clumps of trees ahead along the bearing line and marched *to* them, no matter what the detour, again setting our course for the next landmark on arrival at the one set out for.

But about a year ago I got lost on a starlit night in November in the easiest way imaginable. I went out from camp with the water pail, and it was quite a way through woods and swamp to the river bank. After filling the pail I started back. No camp-fire in sight. Nor did one appear after, maybe, fifteen minutes' walking. I had a compass, but no light to see it by, but I hardly gave it a thought. My first look-see was for a star that I could recognise. Now don't imagine that the Big Dipper or the Pole Star was the one that would be useful, for in November at 9 P. M. the Dipper is way down below the tree line, and not to be seen unless you have a clear horizon. The Pole Star was somewhere to the north and below the tree tops, so that it could not be seen without climbing a tree. Orion was not up yet; what would you have done? Well, I wanted to go southeast to reach camp, and trusted that I would pass within

range of its ruddy glow, and I wanted a big star to the south to steer by, so I looked for my old friend Vega in the constellation Lyra. It is a small constellation, like a lozenge or diamond, with the brilliant blazing star Vega in the south tail of the lozenge, and it is always somewhere overhead and the whole constellation easily seen through the tree tops. At 9 P. M. on November 1st Vega is overhead in the southwest, and, once finding her, all I had to do was to walk at right angles to Vega's bearing to go a true southeast—and soon I passed the camp-fire less than fifty yards away! Lyra is one of the woodsman's constellations, very handy all through the summer months, easy to remember, and small; some of them take up so much room that they are very hard to make out through the trees. And do not depend on any of the planets to steer by, as they change constantly from year to year, but a good constellation is just as good by night as the sun is by day.

Every one, of course, knows the Big Dipper; but they do not realise that he turns about the Pole Star (as do all the rest of the constellations and the sun himself) and, as the Dipper is nearest to the Pole Star he does queer antics, and you may find him in almost any position in the northern heavens. When he is lying flat, parallel to the

horizon, most of him is out of sight. The trees, or even a low range of hills, will hide him completely. If there is any mist the Little Dipper will be hard to pick out, and the Pole Star, being the end star in the Little Dipper's tail, will be hard to locate unless you happen to know north. If you can see the Big Dipper, follow the pointers and the Pole Star will be a trifle off their line no matter in what position the Dipper happens to be.

But the big overhead constellations are more practical. Lyra, Cygnus and Pegasus form a grand chain across the heavens during the summer night, while Orion, the Charioteer and Gemini are the glory of the winter skies. Orion being the most familiar is the easiest to steer by, and of course, like the sun, it is just as easy to tell time by the constellations at night as it is by the sun in the daytime. In January he is "up" by 6 P. M., and then makes about the same time as the sun does, being about the same position at 4 A. M. as the sun is at 4 P. M. In June and July, Lyra, or rather the star Vega (the other four stars simply serving to identify it), gets up at 6 P. M. and is visible by 8, well above the eastern horizon; is overhead by 12 P. M., and well down to the west by 4 A. M. With these two constellations I can tell the time of night just as accurately as with

the sun by day, a useful thing to know when you have some early rising to do in camp for hunting before dawn.

And, speaking of telling time by the sun, it can be told very accurately by the compass and sun, using the reverse of the old rule "Half way between the sun and twelve o'clock is south." After a few days in the woods every one's watch has run down, and I never carry one anyway, so it is seldom that I am interested in the time of day within 15 minutes of right. But once we had to catch a train from a point four miles in the woods from a railroad, and so dug up the time by compass, and—caught the train by one minute! The method we used was this: Cut a small straight twig and lay it across the face of your compass. Aim the twig at the sun, with the inner end of it just over the central dial of the compass. Now, with the south end of the needle steady, adjust the compass card until the needle just bisects the angle between the twig and the point S on the dial. Half way between the sun and twelve o'clock is south. The angle therefore between your twig and S is the same as the hour angle between the time of day and twelve o'clock. The rest is easy. Suppose it is three o'clock in the afternoon; S to W is the same distance on the dial as 12 to 3, and

you will find that the twig will be lying right over W when pointed at the sun at 3 o'clock if the south end of the needle is bisecting the angle between S and W.

It's a good stunt to know when you are out shooting or fishing without a watch and want to get back to lunch on time.

The compass itself is deserving of some fussing over by the crank woodsman. Whether to have a luminous dial, a floating card, or a fixed card and free needle are all points to be considered. The card compass is easy to steer by if it has a rhumb line; simply get your bearing angle and turn yourself to keep the rhumb line on it. With a fixed card and floating needle the instrument makes a pretty fair rough surveying instrument with which you can measure the distance across a lake or river by a base line and two angles taken from the compass. With mine I have come out quite near the results of later measurements taken with a regular transit. With this style of compass be sure to scratch on the case "Black is North" for you would not believe how people can quarrel with a simple fact like that until they get lost. Even a man tenderfoot can be bluffed into believing that black is south when he is in the semi-panic of being lost.

Another curious psychological fact is that mere man is prone to quarrel with the bearings of any single compass, but will always believe two of them. I know one man who always takes two for that very reason. When he gets lost he trots out No. 1, quarrels with it instanter, and, after verifying with No. 2, he decides to bow to the will of the majority and believe them both. In every party both the sun and the compass will be quarrelled with until at least two compasses have been set side by side and compared, all rifles being most carefully stood behind trees so as not to affect the precision. At that, a compass carried anywhere but in one's breeches or boot leg is no compass at all, for like the Dutchman's anchor it is otherwise at home!

CHAPTER IX

A GO-LIGHT BEACH HIKE

Over the Fourth the combination of dates often gives four holidays in a row, and, as such an opportunity is not to be lightly wasted, my boy and I planned a raid on North Point, Barnegat, from Seaside Park. It is ten miles from the rails any way you try to reach it. The best way of all is with a light sail-dory, with cockpit tent in which you can camp at night, and an alcohol galley so as to cook your meals on board out of the blowing wind and drifting sand.

Another way to reach North Point, which we have tried before, is by small batteau, taking along a beach camping outfit. This is mere labour in mild weather, but it is a sure misery when heavy head winds force you to go overboard and push the boat bodily against the wind every step of the way. A third way is to hike along the beach. You have actually a little over eight miles to go, since your nearest water is the Forked River Life Saving Station, near which, of course,

you should camp for water, walking the remaining two miles with surf rod alone to get your fishing. If your pack is light, say, not over 27 pounds, and you choose a low or mid-tide so that you can walk on the hard, firm sand of the surf wash, this method is one of the nicest and most independent of all, for head winds cause you no concern and you can stop and fish every likely hole all the way, making a sort of Progress, as it were, towards the Point, arriving not at all if the fishing above proves good enough.

Now, in midsummer you have considerable latitude as to the make-up of your pack. There is no irreducible minimum of bedding that must be carried to keep you warm; for fall, spring and winter camping the packsack sleeping-bag, with its combined warmth and efficiency as a pack, pins you down to it as a first consideration. In the summer a single blanket suffices, and you can cut a few spreads on the choice of tent and such comforts all inside that 27 pounds of weight. Grub weight in any season seems to be irreducible, unless you take preserved, concentrated and dehydrated explorers' foods. My boy and I have found that 14 pounds of grub for the two of us for four days is just right and not to be reduced with ordinary grocery-store stock, and that weight con-

templates some of the fresh meat to be caught or shot, if we are to have plenty of meat. A three-quart, kidney-shaped tin beer-growler, in a canvas pail that just fits over it and has a leather carrying-strap, is our container for two pounds of fresh steak, a pound of bacon and two small tin cans containing matches and coffee which just fit in one lobe of the kidney. This growler and its canvas pail are both promptly filled with water at the life-saving station pump when we pitch camp. The rest of our grub list is soon enumerated: one pound rice, eight large potatoes, four white onions, one-half pound cornmeal, small can evaporated cream, one pound sugar, one-half pound butter, one-half pound lard, small sack salt, box bouillon cubes, a tin Colgate shaving-soap case filled with baking powder, 14 fresh eggs broken into a 3 x 5-inch friction-top can, small tin of tea, one-pound bag of mixed prunes and apricots, a handful of macaroni sticks—these about fill the bill, which, by the way, comes to about $2, not bad for two people, for four days of good times—can you beat it with any hotel from Bar Harbor to Palm Beach?

The rest of our cook-kit consists of the boy's Stopple, my aluminum pan baker, a nine-inch folding fry-pan, two nine-inch aluminum eating-

plates, knives, forks and spoons in the Stoppie, and two 7 x 3-inch tin mixing-pans. This culinary outfit, of some three pounds' weight, suffices for us and leaves us some little choice for a tent. This time I decided to experiment with a new one, called the Appalachian by its makers. It is a packsack tent, its bottom cloth being 4 x 7 feet, of heavy brown paraffined duck canvas, and the rest of the tent is a sort of pyramidal "forester" of the lightest paraffined green fabric, provided with a bobbinet mosquito front and a little window in the back wall for ventilation, also barred with bobbinet. This tent weighs eight pounds and is carried by stout canvas straps secured to the ground cloth. Folding the green part of the tent inside and doubling over the sides of the brown part, you come to a line of grommets by which the brown tent bottom can be doubled over and laced up to make a pack, similar to the packsack sleeping-bag devised by the writer, with which my readers have become tolerably familiar.

This tent looked like quite a good beach proposition for two. It was mosquitoproof and windproof, and not likely to be blown down or blown to ribbons by the heavy gales which howl across the beaches at night. Its ground cloth, with high front sill, appealed to us as compared to the for-

THE APPALACHIAN TENT AS A PACKSACK

SETTING IT UP AS A TENT

ester tent, without any ground cloth, and the perfect shelter tent, with neither ground cloth nor sides, for the latter is cold and draughty if the wind shifts during the night and comes in on the unprotected side of the tent. We did not mind the eight pounds' weight, for it could be compensated for by taking a single mackinaw blanket apiece, making the load for a blanket and tent 13 pounds against seven for the packsack sleeping-bag plus four for the perfect shelter tent.

So, with the grub divided so that the Kid had a 17-pound pack and I a 27-pound one, we breezed along the beach at sun up from the Seaside Park boardwalk. Just to be free again was joy enough. Nothing to do but camp and fish for four days; no cares and no worries, no house to run, no job to chase—that was enough for me for the present! The wind blew keen and salt off the ocean, and the kindly sun was just high enough to warm us. We aimed to hike down to our old fishing-hole at the Island Beach station and fish there during the last half of the flood tide, also during the heat of the day. We hit up a good clip along the hard-packed wash, now and then running up to dodge the waters, and in three-quarters of an hour had made the Hole. The last time we fished it, it was alive with flounders, and so now our mouths wa-

tered to eat, for once, all the fish we could stuff! But, alas! the sea had washed the Hole flat, and not a vestige of it was left. (Two months later the sea had restored this Hole again and we caught croakers out of it all day long—all we could carry.)

We gave up the fishing as bad medicine by eleven o'clock and shook up a light lunch of steak, creamed potatoes and tea. Then we hit the sands for the next station, Cedar Creek, 3½ miles further on, arriving about four o'clock and fishing every hole all the way down for a short time each. Nary a fish! When our old friend, the huge dune at Cedar Creek, loomed up, we cast off our packs on a big wrecked spar and proceeded to unlace the tent packsack and stake it out on a nice level piece of sand. Meanwhile the Kid was getting a pair of shears, which were soon found in two bamboo poles, and in a jiffy the tent went up. It requires a second set of stakes, to which the walls are guyed out, as its slope is not a plain wedge but a gambrel, like a wall tent. It made a snug little tent, warm and windproof, also flyproof, and we proceeded to keep sand out of it by laying a board platform in front of the sill so one's feet had time to shed sand before entering the tent. The blankets, pillows, night-socks and our coats

were hove into the tent and we were ready for the culinary department. Half a dozen driftwood boxes made a combined cupboard and windbreak, behind which the wire grate of the Stopple was set up, its quart pail put in the holder to boil for tea, the growler, with three quarts of mulligan, composed of chunks of steak, potatoes, onions, macaroni and rice, was set on to boil, and I mixed up a fine cornbread batter in one of my mixing-pans, while the other had a charge of prunes and apricots. Soon the batter was in the aluminum bake-pan, and my undivided attention had to be given it. The stunt is to bake the cake without scorching it, and for fifteen minutes you had best do nothing else but tend that cake! On top of its aluminum cover you want a healthy fire of brands and live coals; under it nothing but glowing coals —no brands and no flame. Just maintain these conditions for fifteen minutes, scrape off the coals from the top, open up the cover and take a peek. She ought to be crisp and golden brown, with never a scorch on her. It is nearly impossible to do it with steel without scorching, but is easy with aluminum, since the conductivity of aluminum is three times that of steel, and no local scorching area of red-hot metal can form, as it does with

steel, over a hot flame. The metal conducts the heat all around the cake.

All these matters went forward to a triumphal conclusion in about 35 minutes, and, as the sun set, we leisurely stowed away this notable feed. Then a wash-up, and we were ready for the fish, which were ready for us, for, with the rising tide and the coming of darkness, they began to bite and kept it up until midnight, as we fished by the light of a huge beach fire. This time the Cedar Creek hole was full of dogfish and skates, the former of which will fight and play as well as any of the smaller edible fishes, and we had great sport with them, although quite disappointed as to not getting that grand fish feed.

And so to bed in the Appalachian, finding it warm and free from mosquitoes. But even in July at 4 A. M. the cold is too much for one blanket and we were awakened by the chill of the wee sma' hours. We took the Kid's blanket out from under us and slept on the ground cloth—rather hard sleeping—but we were warm enough with the two blankets over us to be comfortable. It reminded me of old times, before I invented the packsack sleeping-bag to warm my cold bones and yet not load me up with duffle like a moving-van.

The next day we fished the bay, but it was too

early for the bay weakfish and no one caught anything, so we decided to try dogfish tails for dinner on the advice of the captain of the station. Cut off tail just back of the ventral fin, parboil 20 minutes and fry as with any other fish. They tasted rather strong and rank, like shark smells, but, of course, were sustaining enough. The captain also wanted us to boil and fry skate's wings, which he declared tasted just like crab, but the dogfish was enough for us. Later I learned that nearly all the crab flakes, crab patties and devilled crab in the restaurants of New York are nothing less than skate's wings, boiled and dished to suit the chef.

That evening my old chum, Westervelt, and his cousin Bert arrived, via batteau from Seaside Park, and camped in their perfect shelter tent alongside us. That night the dogs and skates were on the job as indefatigably as ever, and we fished our fill, deciding to try Forked River next day. After a breakfast of fried eggs, bacon, coffee and cornbread we packed up the tent-pack and the Kid's side-opening pack and were off down the beach for Forked River, while Westy and his cousin paralleled us in the bay in their boat. Here we struck the edible fish, croakers, flounders and two small stripers coming to rod.

Curiously enough, these were all taken on hard clam comb, from a dozen we had bought from the captain, squid bait drawing nothing but skates and dogs, as before. The following morning the beach flies of Forked River descended on us in myriads. They were simply cruel, and drove all hands into the surf. Here they followed us, and soon the party was completely routed, the Kid and I packing up and streaking along the beach for Seaside Park with empty packs, while Westy and his cousin took to their boat. We fished all the holes on the way back, but nothing bit during the daytime.

The only one of us who really reached the Inlet over the Fourth was Joe Cawthorne, the famous comedian, who came over from Barnegat in a power boat and ran into a school of blues in the Inlet, taking them from eight to twelve pounds in weight—some fish!

The Appalachian is a good summer tent. In the daytime on the beach it is hot, as are all closed tents, so in pitching it see that it has shade from the sun. Made up as a pack, there is room enough inside it for all the duffle you can carry, and its carrying-straps are properly proportioned so that the load is not irksome nor binding to your shoulders. It hangs rather low, so that in winter, if I

were using one, I would have my eiderdown or wool quilt sleeping-bag rolled in a light, waterproof envelope and strapped on top of the pack, where it would just about come in the small of your neck. There is room in the pack for a single blanket plus provisions, but not for two blankets nor for any kind of quilt. Putting this latter on top, however, you have plenty room left inside for all the grub and miscellaneous duffle your shoulders will stand.

CHAPTER X

CAMP COOKING

Really, the biggest difference between cooking at home and cooking on camp and trail is in the fire. At home your fire is a steady, strong heat, with no flame, an oven handy for baking, and, if it is a gas stove, you can regulate the quantity of the heat. In the woods the fire will be at one time all flame, another all coals, and, in the hands of tyros, mostly out! A certain amount of system is, then, advisable in getting up a woods meal to fit the camp fire conditions, and an experience of some thirty years of camp life, when I have generally been the cook of the expedition, leads me to set down here what I have found practical in getting results quickly. I lay my fire,—dry duff and twigs for a starter if the woods are dry; peeled birch bark, cedar bark and white pine shavings if they are wet,—and set alongside everything necessary to build it up complete; and, further than this, have my water in pots, mulligan stew essentials such as potatoes and onions, peeled;

rice in its pot, salted; stewed dried fruits in theirs, sugared; everything ready before the match is applied. As soon as the blaze is assured, these are hung on the dingle stick or set on the wire grate, and they then get the full benefit of the high flames while the wood is burning down to coals. Meanwhile I am at my breadstuffs,—corn bread batter, dough gods, squaw bread, etc.,—and, when the batter or dough for these is ready, the fire is generally less fierce and more tractable for baking, the pots are all boiling like fiends, and a few blazing brands are available for high fires for the reflector baker or Dutch oven as the case may be. While the bread is baking I get at my fried work; —elk steaks, fish, birds,—and set these over all the coals I can spare from the main fire. The frying takes fifteen minutes, by which time the baking is done, and the boiled foods, which generally take at least 35 minutes, are ready and grub is served hot and all finished at the same time.

This is a good system to follow; for, consider a meal in the woods strung along any old way by an amateur. He generally starts off with his frying, when the flames are so high that everything gets scorched including his own fingers; his pots are set in the back part of the fire where they get little heat and are forever in coming to a boil, and

fifteen good minutes are gone before he can take his attention off the fry pans for an instant. Then a long wait while the bread is got ready, and another fifteen minutes baking it; meanwhile the fried food is getting cold and indigestible. Finally he looks at the pots and notes that they have only just begun to boil, the rice is hard, the potatoes like rocks,—another long wait while everything else gets cold. The meal is generally eaten on the instalment plan, as the rest of the party is too hungry to wait any longer, and, when through, there is an empty feeling, as most of the boiled stuff was half done, the fried work tasteless, and the bread scorched. No, sir; *system* is the one thing to nail fast to in the woods!

Hardly less in importance is the kind of wood the fire is made of and the arrangement of it. Trash woods, such as pine, cedar, hemlock and balsam, blaze fiercely, with little heat, and yield a white, poor coal that is ashes in ten minutes. Good cooking woods, such as blackjack oak, birch, hard maple, pignut hickory and dead white oak, burn with an intensely hot flame that gets the pots boiling in a jiffy, and yield live coals that glow for hours, the least of which will keep a large pot simmering.

The cook himself should never be required to

rustle firewood and water; that job devolves upon some one else in the party, for he cannot leave his work of preparing and watching the meal, tending fire, and the like, to provide wood and water also. So, if your assistant presents himself with an armful of dead trash wood, make him do it over again and do it right. Steer him for the dead lower branches of the nearest oak, down limbs of a maple, some nice green or dry birch, and insist on having them. Meanwhile you pare the spuds, peel the onions, get out the rice and put it in its pail, and, by the time he is back with water, you will have two pots of the meal ready.

In building the fire, the handiest thing, especially for a nomadic trip by canoe or horseback where you are travelling each day, is a light wire grate. Carry it in a khaki bag, so it will not get the rest of the duffle sooty. Stick its legs in the ground over the fire site, build up a grid of split blackjack oak billets with a kindling fire of small trash underneath, and set the pots on it as thick as they will go. For a noonday stop, where only two things are to be cooked, the dingle stick fire is the handiest to build. Cut a sapling about ten feet long, drive one end into the ground at a long slant, so that the dingle stick will lean out over the fire, cut two short forks about two feet long to

support the inner portion of the stick, and hang the pails on the stick over the fire, which is generally built between two short billets to concentrate the heat under the pails. As each pail is added it bends the dingle stick down lower, so the best pothooks for it are those made of brass window sash chain with a hook at each end. The chains are wound around the stick, with a pot bale in the lower hook, and the upper hook adjusts the height above the fire by putting it into whatever link of the chain will bring the height right.

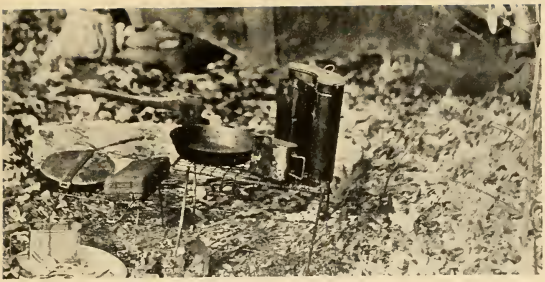
For a reflector baker fire you want a hot high flame, for a low fire will always burn the under side of the biscuits before the upper side browns. If you are using a wire grate, all you have to do is to steal a blazing log from under it and put it across one end of the grate, when its flame, plus the ones of the fire below, will give you a wall of flame about two feet high, in front of which you set your reflector baker with the biscuit or bread pans inside. If you have no grate, build a small backstop of billets about two feet long and two inches in diameter, five of them will do, slipped between pairs of stakes, and against this lean your sticks of trash wood with a kindling fire underneath. It will make a high-flaming, hot fire

that will last about fifteen minutes, by which time your biscuits will have risen and browned.

Again, if you have no wire grate for your main fire, a good substitute is the regulation wilderness camp fire, built with two stout stakes at each end of the fire and a cross pole. The drawings generally show these with forked stakes, but practical woodsmen seldom take the time to hunt for a pair of forked saplings as they are hard to find and harder yet to drive. Instead we cut and drive two straight stakes and fasten on the cross pole with two bits of copper wire, carried along for that purpose. However, the time lost in building this fire does not begin to amend for the small extra weight of a wire grate, and I usually take the latter even on a back-pack trip. By the time the cooks have gotten those stakes and cross pole up and ready for business, the old-timer will have had his whole meal half cooked!

Next in importance after a fire is something to cook the mess in. Woods travel conditions require lightness and compactness. Heavy agateware utensils, tea pots and coffee pots of the home patterns, will not do; they weigh too much and take up too much room. The ideal cook kit, as worked out by modern outfitters, comprises a set of nesting aluminum pails, with mixing pans and

fry pans which slip over the ends of the biggest pail, the whole going in a khaki bag or fibre case. These come in sets for from four people up to a large party of a dozen, and, for slender pocket books, the whole thing is gotten out in a good tinware of identical size but of tinned sheet iron instead of aluminum, and, of course, heavier. Aluminum, however, makes the best camp cooking utensil, not only because it is light but because, as aluminum has four times the conductivity of steel, it will scorch things much less easily, since the superfluous heat flows through the metal to cooler parts of the utensil instead of being concentrated in one spot where it must inevitably scorch what is inside unless constantly stirred. This is an important point for campers, as you are always getting some flame played on one spot by a single over-ambitious brand, and steel-ware or agate generally scorches with such a flame, while aluminum will distribute its heat and save the dish. In these nesting aluminum sets the smallest pot is generally for coffee and tea, provided with an inside strainer and a slight lip which does not prevent its nesting. In this can be carried the table ware, or else small provisions apt to get lost anywhere else. The next two larger pots are for cooking dried fruits and the boiled cereal, while the larg-



BAKING PAN, KIDNEY-SHAPED
PAIL AND STOPPLE COOK KIT

A NESTING ALUMINUM CAMP KITCHEN

THE FORESTER COOK KIT

est, of maybe eight quarts capacity, is for the big stew of the evening, without which no camp meal is complete. Over the end of this big pot, which swallows all the smaller ones, are two shallow nesting mixing pans, for bread making and preparing sautés by inverting over the fry pans, and over the other end of the big pot you will find two steel fry pans with folding handles. You can thus bake, fry and boil,—without which triple capacity no cook kit is complete!

For four persons or less we get the combination aluminum and tinware kits, like the "forester," which has two 4-quart aluminum pots, containing a tin tea pail, mixing pans, baking pans, folding fry pans, etc., and, still smaller, for two men or a lone hiker, are the Stopple and Boy Scout kits, the former having two large tin cups, a quart tin pail, two long rectangular fry pans and a wire grate, weighing two pounds altogether and going in your pocket. With it I have prepared many a good feed for two, while the "forester" is my standard for a party of four to six, using the larger sets for parties of eight to twelve people. Coffee and tea cups, however, should in all cases be of enamel ware as the aluminum cups are such good heat conductors as to scald your lips when your mouth can easily drink the liquid.

With the cook kit provided for, the next thing is what foodstuffs to take along. There is no use lugging a lot of water in combination with vegetable fibre in the form of fresh vegetables and the like, when the mountain brooks and lakes are full of wet water. Every pound counts, particularly when there are portages, so we have to cut out many of the things used in the cuisine at home and take along dry foodstuffs that make many times their weight of cooked food when mixed with water and boiled or baked. However, this concentration may be overdone, so certain indispensable vegetables I generally take in small quantities, not to be eaten wholesale but as ingredients in other larger affairs. Spuds and onions come under this head for me; I do not take enough of them to have much fried or boiled potato, or creamed onions, but I do take enough to insure them in the stew every night, for what is a stew minus onion and potato? Particularly the festive mulligan!

At the head of the staples I would put rice, flour and cornmeal. Rice is light, easily packed and carried, and makes about six times its weight of cooked food. Cornmeal is very compact, and sticks to your ribs long after any breadstuffs prepared from white flour have departed and left an

emptiness to ache in the void, so corn bread and corn mush fried are two items that show up on the bill of fare at least once a day when on the trail. White flour is indispensable for biscuits, flapjacks, and squaw bread. These three staples are all you really need, but oatmeal is often taken because of its lightness, although very mussy to clean up after. All the predigested "breakfast" foods are "nix" on the trail, because no form of evaporated cow goes palatably with them; without fresh cream and milk they lose out.

For accessories you need eggs, baking powder, salt, sugar, milk, cocoa, butter and lard. The best way to carry eggs is broken into a friction top tin can, a 5 inches x 3 inches diameter can holding fourteen fresh eggs. On a big trip a lot of them with their shells on can be carried in the biggest pots, buried in flour or cornmeal; and a third way to take along eggs is in the desiccated egg powders. The latter are mixed right along with the flour in corn bread, cakes, flapjacks, etc., and mixed with water for omelettes, scrambled eggs, and to roll fish in before frying. Baking powder goes best in its original can, so that it will not slack, and sugar goes in the paraffined muslin food bags, of which more later. Take lots of it, for the quantity of sugar that one craves in the woods is

nearly double that of civilised conditions. It is heavy, but there is no making up for its absence. Milk comes in cans of evaporated cream, very handy and palatable in camp, and easily made into milk by adding water when making up batters, creamed vegetables and omelettes; it also comes in powdered form requiring a little time to mix with water and return to the liquid state. I prefer the can for table use and the powder for mixtures that are cooked later.

Cocoa in its original can, and served as the drink for the mid-day stop, very nutritious and bracing, a great pick-me-up and easily prepared. Add water and evaporated cream, sugar to taste, and cook twenty minutes no matter what the directions say. Butter and lard go best in friction top tins and both are sunk in the outlet from your spring when not in use. I take lard along as there is generally not enough of drippings from bacon and pork to make out, and about half a pound of it ekes out many a fry.

This brings us to the meats. We generally figure on one-third the meat supply being furnished by the rods and guns of the party, or else the country is not worth camping and travelling in. We take, then, bacon, of prime quality and well flavored so it is toothsome with fish or eggs; pork

that is pink and well streaked, used with beans in pork and beans baked,—also diced and served with boiled rice,—also as a frying addition to fish and game; then a side of dried codfish, which is wonderfully acceptable after the palate is tired of fresh fish and game; and, as a final standby, dried elk, beef or pemmican to cut up and serve cold at lunches or to cut into the mulligan if the guns have had no luck. In addition I take a box of beef capsules as a flavourer of soups and stews, one cube to each man, and a few sticks of erbswurst or pea meal for an emergency ration and a soup stock.

Finally, canned goods and dried fruits. You must have fruit in order to keep off constipation, and dried prunes, apricots and apples, with a pound or so of dates, fill the bill. Served as a pot-pourri or tutti-frutti, or served singly, these three fruits simply need addition of water and lots of sugar to make a most "eatinest" dish, and as a bowel regulator they are all fine. Jelly powder is also good; comes in many flavours, is light, and quickly prepared, and I often take it along. Dates are fine for the mid-day snack, as they contain nearly as much protein as meat, and so stick to your ribs of a hard afternoon's ride, tramp or paddle in a way that earns your eternal gratitude,

for there is nothing quite so forlorn as that entirely empty feeling when you have still miles to go and lots of work to do before you can eat again. As a helper in this emergency I take along a small bag of nut kernels, shelled almonds, hickory nuts, walnuts, pecans and Brazil nuts, all mixed in small crumbs, and a handful of these washed down with a gulp of water will put steel into your paddle when you think you are too feeble for another stroke!

For canned goods I have restricted the list to just beans, for some time past. The rest are fine, but can all be prepared just as easily from dry and light forms of the same things. But dry natural beans take two hours to do, and, unless you are at some base camp where you will not move much, it is hard to get two hours to do them in. The canned ones weigh somewhat more, but are ready for business at once. Just pour out into your baking pan, add a chunk of pork, bake fifteen minutes, and you have a world-beater camp dish, no less!

The condiments, of course, will be tea, coffee and pepper. Tea you cannot do without. At night it is the most restful drink for tired and weary voyageurs that has ever been discovered. Get a brand whose leaves sink to the bottom of

the pot when steeped, as then you can pour clear tea, free from leaves, out of an ordinary lipless and strainerless pail, with great *éclat!* Most people *must* have coffee for breakfast or the meal is a failure. I'm one of those people, and I take the coffee in a baking-powder can for small parties, or in a paraffined muslin food bag for a crowd where there will be many grabs to be dipped out to brew enough. Pepper takes little or no room, and flavours so many different kinds of eats that it is poor policy to leave it behind. Salt you will take more of than at home, as there will be fish and game to salt down and hides to cure.

This winds up the ordinary grub list. Added to it are a lot of dehydrated foods, especially made for campers and explorers, and many of them will come in mighty handy. For instance, dried soup greens weigh nothing at all and a handful of them added to a game soup, plus a few bouillon capsules, makes a gumbo that will be relished by the whole party and make no appreciable inroads on the grub pile. Mushroom, chicken, bean, pea, and oxtail soup powders are all good if you are careful to follow the directions. I have used them a good deal, and have seen many a meal spoiled by the cook trying to just stir them into a pail of hot water and let boil. Generally

the contents cake on the bottom of the pail, and, what should have been a thick, nutritious palatable soup, becomes an indescribable brew with a cake of good powder burned to the pail bottom. But if you mix up the little cubes as directed and follow instructions you will get a soup for eight out of a 2-inch cube of powder that is amazingly good. On long trips where all sorts of emergencies are to be looked for, I would not be without a stock of these desiccated foods to fall back on, and use occasionally anyhow. I would not care for them as a steady diet, for no preserved foodstuff can equal fresh things. Raisins come under the same head. Served with rice as "speckled pup" they are good, also eaten occasionally as a mid-day fruit, but if you go at them constantly you will get intestinal upsets and not digest them, as they are so highly preserved as to be hard to assimilate.

Finally wilderness foods. In addition to nuts and berries in generous quantities, the woods are full of tons of good food. The duck marshes from September on are heavy with wild rice, a bushel of which can be knocked into your canoe with a pair of sticks, trodden out in a hollow in the ground lined with your poncho, and the stick-like grains are eaten boiled like white rice but very

much more tasty and palatable. The root of the yellow water lily makes a fine potato; so does the Indian potato or wild sunflower root (Jerusalem artichoke), eaten raw or boiled; the beefsteak mushroom fried is as good as egg plant and more nourishing; rock tripe, dried over a fire and boiled, makes a nourishing tasteful dish, particularly when served with sautéed game; two more good tubers for stews are the rooty tuber of the ground nut and the bulb of the wood lily; and all the white oak family of acorns need but drying, powdering and leaching to make a good batter for flour cakes. It pays to get acquainted with these wilderness foods, for some day you may get lost and will need to subsist on them until you find your fellow men again. For emergency utensils, the log or birch-bark bowl with hot stones is the best boiling medium. I have boiled soup and tea in a birchbark bowl with a fire of live coals under it, but prefer the hot stones as surer and easier. It takes fifteen stones the size of a hen's egg to do a quart of soup for twenty minutes. It will begin to boil at the fourth stone, and each one from that time on will keep it bubbling about a minute. Add water as it steams away, and return stones to fire for reheating. Quartz is the best material, and the stones should get white hot and fire clean, not

sooty as they will be at first. I once boiled me an erbswurst soup this way when lost in the forest. It took me an hour to make a maple log bowl that held a quart of water, and, twenty minutes later, I was drinking the soup.

I append herewith a unit grub list for two men for four days using the standard explorer's and hunter's foods.

UNIT GRUB LIST

2 Men 4 Days

1 lb. bacon.
1 lb. salt pork.
1 lb. side codfish.
1 lb. rice.
½ lb. butter.
½ lb. lard.
¼ lb. coffee.
1 small can evaporated cream.
1 doz. beef capsules.
1 lb. self-raising buckwheat flour.
2 lbs. white flour.
1 lb. cornmeal.
1 lb. sugar.
2 oz. baking powder.
2 oz. tea (black Ceylon).
2 oz. salt.
1 doz. eggs.
1 lb. prunes.
1 lb. dates.
1 lb. apricots.
1 lb. cheese.
1 lb. smoked beef.

4 potatoes.
4 onions.
2 lbs. steak (until fresh game).
1 can baked beans.

W. H. M.

Here are some menus made up from its ingredients: Breakfasts: (1.) Coffee, stewed fruits, bacon, flapjacks, fish, corn mush. (2.) Coffee, bacon and eggs, corn bread, prunes "as is." (3.) Coffee, oatmeal, flapjacks, "dope" and fried elk liver and bacon.

Lunches: (1.) Cocoa, sliced cooked ham, cheese, raisins, nuts. (2.) Cocoa, graham crackers, dates, dried beef. (3.) Cocoa, nuts, raisins, crackers or Swedish wheat bread. You will note that these lunches are light yet nourishing, as there is no time of the mid-day stop to cook a big meal, nor do you want a big weight in your stomach to digest while on the trail or busy hunting or fishing. The Indian truly said, "No man can eat meat more than twice from sun to sun and keep healthy in mind and body." At four or five o'clock the party begins to look for a camp site or returns back to camp from the day's sport, and then comes the big feed of the day. Suppers: (1.) Tea, mulligan stew, rice, fish or game steaks, biscuits, fruit stewed. (2.) Tea, mulligan, elk steak,

corn mush fried, squaw bread, "speckled pup" (raisins and rice). (3.) Tea, mulligan, pork and beans, doughgods, fish, prunes. (4.) Tea, birds sauté, creamed codfish, flannel cakes, jello. (5.) Tea, mulligan, roast wild duck, creamed potatoes, tutti-frutti, corn bread.

Squaw bread and doughgods are both huge biscuits, mixed with a spoon with little or no handling once the dough is made, and the first is baked in the fry pan, bottom browned, then pan tipped up with a stick to brown the tops. Doughgods are baked in a Dutch oven or camp stove oven. For corn bread my own recipe for four people is, 1½ cups flour, 1 cup corn meal, one tablespoonful of baking powder, two tablespoonsful of sugar, one teaspoonful of salt. Mix; add a beaten egg, a thumb of butter melted, and enough milk water to make a thick, slow-pouring batter of it. Pour into baker pan, set in baker, and set before fire. For one or two men I make a recipe of one-third this size and pour into a little aluminum pan with cover and folding handle. This is set on the grate over a bed of live coals and a flourishing fire is built on the cover from brands stolen from the main fire. In fifteen minutes there will hop out of that pan a big cake of corn bread that will be all that two men can guzzle! I have also made it

in this way with the steel pans of the Stopple kit, but you must watch your fire much more closely, owing to the tendency of steel to scorch. Seldom have I turned out a cake from those pans without at least one end of it burnt.

The standard camp baker is the folding aluminum, made by various companies in the form of a double reflector with closed ends and a rack to set the pans on midway between the reflectors. The pans are of black steel, and your biscuits, doughgods, corn bread batter, or roast 'coon, 'possum or duck, go in the pan. If you manage the fire as described in the early part of this chapter, all will be well and you can see your baking rising and browning.

A third popular baker, particularly in the West, is the Dutch oven. This is a heavy iron pot with a deep rim cover on which coals can be piled. It is a great baker, and will not scorch things easily. It is heavy and out of the question for back trips or portages, but where you are packing through the mountains with a train of horses it is the best bet, and no cowman or mountain man will be without it, any more than he would leave behind his can of log cabin maple syrup! Still another good baker is the little oven found in most folding and non-folding camp stoves. These stoves are all

light and easily carried by horse or canoe, and I have even gotten up one for back trips, for they are the only thing in winter camping when the blizzard is roaring outside the tent and cooking in a driving snow would be hard business.

You will note in all these menus that there is not much frying. The fry pan is an excellent utensil, *if* judgematically used and you get your fat screeching hot before dropping in batter, fish or egg. Its purpose is to form an envelope of crisped food tight around the thing cooked, and this the hot fat, with its temperature of over 350°, lets you do. But if you put the fish in the grease cold, the fats penetrate to the innermost fibres of the food, making it all greasy and indigestible no matter how long you cook it afterwards. Balance your fried work with plenty of boiled and broiled stuff, and you will have no sickness and no headaches in camp.

Let us conclude with some observations on the mulligan. This is the camper's generic name for the big stew of the evening meal. Experienced men do not leave it out, for it is a great internal cleanser and regulator, besides being most easily digested. It is made of most everything shot during the day: grouse, fur, elk chunks, moose ditto, pieces of deer, a handful of rice, an onion sliced

in for each man, a spud for each and a handful of dried soup greens. This invention is the first thing over the fire and the last to leave it, for the longer it cooks the better it gets. About six quarts for four men is about right, if the men are up to normal capacity (the mulligan always is). I usually tip in a cube of beef capsule for each man just before serving. After the mulligan and hot bread are well stowed the party attacks the meat, rice, more hot bread, and tea, and when that is gone you lift off the fruit stew and set it in the snow to cool, and when that is down they are about ready for their pipes. Then the sleeping bags are unrolled, and soon the animals are snoring like majors and the mulligan is getting in its fine work. With that and the mountain air to see you through the night you will wake up next day with a fighting edge on and be ready to labour like a horse and so store up bodily health against the ravages of the mind when you get back to the worries of business.

CHAPTER XI

OMAR, THE TENT MAKER

If the Persian poet lived to-day he would be —an outdoorsman. He was more than a tent maker; he was a content maker, so to speak, for he had the true sportsman's code of enjoyment—pleasure and livelihood from the simplicities of nature. Not to quote the too well-known lines to the wilderness, the jug of wine and the book of verse, here is a quatrain typically Omarian, and not done to death:

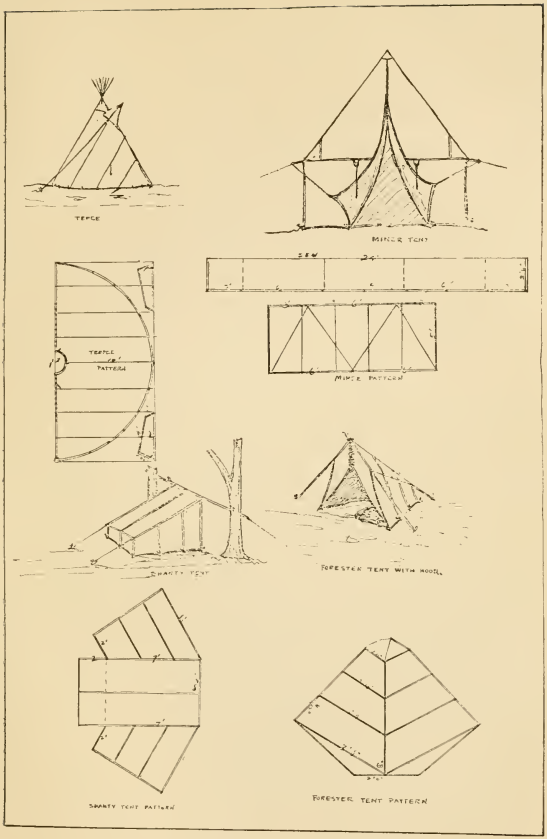
Waste not your Hour, nor in the vain pursuit
Of this and that Endeavour and Dispute.
Better be jocund 'neath the trailing vine
Than sadden after none or bitter Fruit.

I feel a little diffident about talking tents, being somewhat of a tent crank myself, so that I look on all other designs with a yellow and a jaundiced eye. There are, however, other tents that I take off my hat to. My "forester" would hardly be ideal where three long slender saplings could not

be cut and where the desert thorn is the best apology for a tree that the locality can boast. Other climates, other tents. Many tents, especially the immortal lean-to, have been provided by the makers with veranda flaps, because of which the tyro persists in sequestering the fire beyond the reach of mortal man. In point of fact under the veranda is just the place for a moderate cooking and heating fire. Then is the time the interior of the tent is damp and dreary and the fire should be doing his proudest to keep things warm and dry. The old chief and the writer once camped out in a villainous Nor'easter that filled the woods with wetness for a week. Did we close the flap and shiver in gloom inside? We did not. We spent the entire week before an imperishable Nessmuk fire, sitting in our shanty-tent in a continuous orgy of poker playing, cooking and eating, varied only by periodic clubbings of a hound that *would* try to purloin our ham. An argument often urged against a night fire is that it spells hard labour. Let me imbed this in thine ear like a camp pillow—it takes just twenty logs of five-inch timber to take you through an entire October night!. Many's the time I've cut those logs with a 2 lb. camp axe at the witching hour of five, and never yet have I spent a chilly night, rain

or shine. You put on six when you turn in at ten, six when you wake up at 1 A. M., and six again at 4 o'clock. The other two are for the breakfast range. During July and August you need no night fire. Just a large flat stone propped up by two stakes and a two-hour dead wood fire from 8 to 10 P. M. And I do dearly love to face the tent to the northeast where the rising sun can stream in and warm me—lazy devil—before finally turning out for the day. It also brings the tent doorstep in cool shade during the sweltering 4 o'clock sun of the afternoon. With this foreword as to fires let us pass to the making of tents.

While it is true that an astonishing variety of tent forms can be made of a single rectangular sheet of canvas, say 8 by 16, and provided with suitable rings at strategic points, it is also true that the strains in a tent run up the lines of the folds from the tent pegs to the points of support. As canvas stretches more across the bias than up and down the weave, such a tent will neither take nor hold its true shape unless the lines of strain are reinforced with gores and bolt-ropes, or, in very light material, strong tape. Remember that each wall or slope of your tent must hang or draw from some stout fixed edge, such as a hem or a seam or a rope, along which the strain that holds



DIAGRAMS OF THE FOUR TENTS

TEPEE, SHANTY TENT, FORESTER, AND MINER'S TENT

the tent in shape must travel. Any attempt to make this stress travel through the weave of the canvas itself will result in an almost indistinguishable edge and a weak and formless tent. If you will cut out a sheet of stiff notepaper twice as long as it is wide and experiment with it by creasing and setting up you will find that the following six well-known tents can be shaped of that one sheet of cloth: Lean-to (no back wall and one-third of canvas wasted); Miner (no wall); pyramid; Arabian; cone, and canoe tent.

Only three of these will be any good for practical camping, as the others are either too small for their shape or involve considerable waste canvas. Of these three the Baker lean-to and the Miner will cover both forest and prairie. To get your square of canvas: Most country stores and city department stores carry 8-ounce and 10-ounce duck canvas in the standard 30-inch width at about 18 and 22 cents a yard. The wide sizes, all in one piece, such as are used for motor-boat cabin decks, etc., can only be obtained from ship chandleries or the cotton goods manufacturers. In any event, a tent is much like a sail in the wind stress it has to carry, and is better seamed and gored with a fold in the middle of each 30-inch width. Out of this piece of canvas a passable lean-to can be

folded by losing about a third of the material in sod cloth. More floor space can be covered by using it as an Arabic rectangle tent, but the angles are so flat that there is little real head room in it for your 15 yards of cloth. Used as an A-tent or a wall tent it has no back or front—a trifle draughty—and, folded into a pyramidal form, again a third of it is lost in sod cloth, while the resulting tent is tiny. Tent shapes are just like gambrel roofs—you can get much more living room under that shape than in a straight gable roof for the same spread of canvas. And, as soon as you give it two slants from ridge pole to tent peg (as in the wall tent) you must have specially cut ends for it.

The logical outcome of all this is that, for the most roomy and light forms of tents, a rectangle of canvas will not do. It is better to choose the style that suits you best, decide on the size which fits you and your chums, and make a real tent. I will describe the four forms which appear to me to meet best the various climatic conditions one is apt to meet. First, the Indian teepee. Requires two things, a dozen straight poles and a knowledge of how to keep two logs smouldering all night without raising an intolerable smudge. Good for permanent camps for a party of four or

more in cold weather and in resinous forests. With deft handling of the fire it gives maximum comfort with the least effort and covers the most floor area with the least canvas. There is nothing complicated about the teepee canvas. Any semicircle will fold up into a cone—the true teepee form. To make one covering a 10-foot circle get 28 yards of 8-ounce duck canvas. This will weigh 14 pounds and cost $4.48. It comes 30 inches wide and will sew up on the machine to make a sheet of canvas 21 feet long by 10 feet wide. Peg it out flat on the lawn, find the centre of one side, and strike a semicircle with 10 feet radius and another small semicircle of one foot radius. Cut out and hem all around the edge with a single 1-inch fold of the duck. You are now ready for the grommets. These are small rings used by all sail and tent makers. They come in two parts, the thimble and the ring, and are kept by all hardware stores in harbour towns, or by such general hardware concerns as Patterson Bros., New York. The ⅜ inch grommet is best for tents, as it fits neatly in an inch hem, and they cost 40 cents a gross box. To put them in you can use a sailor's fid or else just a large 20-d. nail. Cut a hole in the hem with the scissors, insert the thimble of the grommet, slip on the ring and turn over the thimble by work-

ing around with the nail, turning over the edges. The soft brass folds back over the ring, cinching it down on the canvas and leaving a neat smooth brass hole in the canvas for your tent rope. Finish with a light tap of the hammer. You will need ten grommets, spaced equi-distant around the bottom edge of the teepee, one in the centre edge of the throat circle for the raising string, and a row of them down each edge, placed exactly opposite for lacing the front edge. Cut out two smoke flaps of the waste material and sew on two pockets for the smoke poles in their upper corners. Hem all around and sew to the upper edges of the teepee from the throat down. The smoke flaps should have a 4-foot edge attached to the teepee, a 5-foot edge outstanding, a 2-foot top, and a 12-inch bottom. Put a grommet in the lower corner of each for the trimming ropes. To set up the teepee get twelve straight 3-inch poles 14 feet long, tie three of them together, and set up the tripod. Lay all the other poles but three, spaced equi-distant with their butts in a 10-foot circle, omitting the one opposite the door. Fasten the last pole (which should be the one opposite the door) to the raising grommet and lay it up. Peg out the teepee and lace up the front as far as the

door. Set your smoke flaps down-wind as near as possible.

Five men can live comfortably in a 15-pound teepee of this size in any kind of weather, provided one of them knows how to build a teepee fire. The niftiness of this art consists in providing enough live coals to eat up gradually two logs. Start with a small wood fire built on four short two-foot logs laid in a square, two across the other two at the ends. The logs shouldn't be over three-inch diameter. When you get a bed of embers put in the two cross logs and let her simmer. In about two hours everything will be out but a few glowing coals on the charred and half-burnt logs. Start more kindlings and a fresh supply of small stuff with two fresh logs and the charred remains of the other. Two hours later the fire will be all in again, but you have gone through the entire night on two fires, as either the sun or you will be up by the time the heat of that second fire is gone.

The Miner's tent has a number of the same advantages as the teepee. Peary used this type in his Arctic work because one or two walrus oil fires *à la* blubber-and-wick sufficed to keep the tent within reasonable temperatures below zero. In the Land of the Little Sticks, where anything six feet

high is a curiosity, and in cactus land, where economical fires are much in vogue, the Miner's tent is also desirable. You have to take along a jointed pole. In shape it is virtually a wall tent with two roofs forming a four-sided pyramid. A tent six feet on the side will sleep two men and weighs eight pounds in eight-ounce duck. To make one: The walls are of a single strip of duck 30 inches wide, 24 feet long (eight yards), hemmed at the bottom one inch and provided with a grommet at each corner and two in each lower edge spaced two feet. The roof is of four 6x5 feet isosceles triangles, which are made by sewing five 5-foot strips of duck together to make a sheet of canvas 12x5 feet. Out of this you can cut three full 6x5 triangles and two half triangles, which latter lace up to make the fourth. Lap and sew the four triangles on the machine to form your pyramid, double-seaming all the joints, and sew the wall strip around the bottom of the pyramid, leaving a door in one side. Hem the edges of the door and the half triangles of the corresponding side of the roof and put in grommets every four inches, meeting, so that they will lap snugly when laced up. The tent now wants a reinforcing patch at the peak to take the strain of the pole; four ear tabs at the corners for the guy ropes, each provided

with a grommet, and four more ear tabs in the centre of each eave. These tabs should be about 2x3 inches long of double-thickness duck, with a 6x6-inch anchor, sewed to both wall and roof. To set up: Peg out the four guy ropes of the corners and raise the pole. Take up guy rope until the roof is taut and the pole sets perpendicular. Next the four guy ropes for the middle of each side and finally peg along the bottom of the wall. In Arctic work the wall is omitted.

The Frazer canoe tent is to all intents and purposes the Miner's tent without a wall, and provided with a bobbinet netting window in the rear, with the front roof slant cut out to make a door, over which is sewed a flap which can be extended for an awning or closed as a door in bad weather. It is also octagonal, which covers more floor space per yard of canvas, but has a good deal of waste space, as there is no straight side anywhere long enough to put a bed or cot. It is a good tent for midsummer canoeing where the night fire is not needed. With pegs and pole it is said to weigh thirty-two pounds, which is a good deal too heavy for a pack trip, but by forgetting these and making the tent in eight-ounce duck you can cut down the weight to twelve pounds. The size Mr. Frazer uses covers an octagon 8½ feet in diameter. The eight

triangles of which it is made are 38 inches on the base by 10 feet 2 inches high, including the flap left over for sod cloth. To make one you therefore need to sew up five strips of duck into a piece 13 feet by 10 feet, and out of this get seven triangles and two half triangles which are sewn up as in the Miner's tent. The door is 5 feet 6 inches by 14 inches wide at the top and 20 inches at the bottom. The awning is 5 feet 8 inches, fastening down with heavy brass hooks and eyes. Details of finishing these will suggest themselves to the reader if interested.

Perhaps Nessmuk did more to make the shanty-tent or lean-to tent known to the sportsman's world than any other writer. It has always been very popular throughout the northern timber belt, and for a party of four on a hunting trip is hard to beat. It requires a rousing fire in front—a mighty hygienic requirement—as the deep woods are *always* damp, rain or shine. This cold, damp chill comes out at night from under the leaf sod and fills the forest. It doesn't make any great change in the temperature, but it does affect the humidity, and it will go through an ordinary blanket like smoke through a bale of hay. Even a few embers and hot ashes in front of a lean-to, however, will keep it at bay, whereas a closed tent

THE FORESTER TENT WITH PACKSACK-SLEEPING BAG AS A STRETCHER BED

without an impossibly heavy floor-cloth will fill with it from the very soil it stands on. The camp fire in front changes all this. It warms and dries out the top layer of forest soil, warms your browse, warms the blanket and everything else in the tent that its rays strike. And it will continue to do so so just as long as there is an ember left to send out a ray of heat. I said that the shanty-tent will take good care of a party of *four*—and said so advisedly. When made wide enough for more than that its sides are of little use and it gets draughty. The nine-foot length I have also found undesirable, as it puts you too far from the fire. Heat intensity varies as the square of the distance—in other words, you will get only 49/81 of the heat in a nine-foot tent that you will in the seven-foot tent from the same fire. I used both the nine-foot and the seven-foot shanty-tent many times on hunting and camping trips. The slant was not enough in either length to really shed a heavy rain, and the roof got baggy in wet snowstorms. Otherwise, it was a very light, tight and comfortable little forest house, albeit a trifle irksome in the building of it. But with a stout pole nailed to two trees, to which the front edge could be laced and guys out astern, you didn't need any frame, so we reduced the actual time of

erection from Nessmuk's three hours down to about twenty minutes. To make the seven-foot size you want about six feet of height at the front and two feet at the back. This gives you a four-foot angle of slope. Sew up three thirty-inch strips of duck, cutting always alternate slopes and square across so as to waste no material. You will need about four yards to the side. The top and back are in one piece ten feet long, and as two thirty-inch strips make you five feet wide that's the easiest width to adopt, and takes seven yards of canvas. Sew to both sides and the back edges on the machine, and sew on three ear tabs with grommets for rear guys. Put in four grommets along each hemmed foot and the tent is done. It will weigh waterproofed ten pounds. To set up: Either a cross rail in front with guys running to stout pegs out behind the tent will do, or else build a light frame of beech saplings. The fire should have back-logs or a big stone for a heat reflection, and should be not over eighteen inches from the tent mouth to the business edge of it nearest the tent.

The "Forester" tent described by me in *Field and Stream* (Nov., '09, being the first offence) did not spring from the brain of this scribe during some infrequent flash of luminosity, but was de-

veloped out of many woodland studies of what the shanty-tent did *not* afford in the way of modern conveniences. I camp a good deal alone or either one companion along, and the S. T. was entirely too airy and roomy even in its smallest dimensions. If you made it any narrower most of the heat would get away. And then I seldom or never could find two trees growing at exactly the right distance apart and at the same time commanding exactly the right view. And, if the wind changed and blew a squall of rain into the tent's mouth, it was somewhat difficult to move the trees. I liked the teepee idea—provided it didn't go further than three poles. And it struck me that half a teepee with a fire in front would be a step in the right direction. With a wall at the back to put a definite stop somewhere to flying heat rays, and the walls at the side sloped to reflect heat on the sleepers, progress seemed to be progressing finally with the invention. The pole down the ridge and passing out through a hole in the back was the sole survivor of all those teepee poles, since the other two were much better outside, spread apart like a sailor's shears. To get away from the room-wasting slopes of the A-tent a gambrel roof was the thing, and by tying the front edges of the tent out to the shears that very

shape was gotten at once, whereupon the inventor rested from his labours. The first of these "forester" tents went out with me to a camp on Turkey Point in October, 1904, and we were in love from the start. She has been out many times since, and at this moment reposes in the right lower compartment of the gun cabinet. To make the only size that really has any excuse for existence—the one or two-man size—get thirteen yards of eight-ounce duck. The foot and ridge angles are 30 and 15 degrees. Cut out the gores for the two sides from your strip of duck with 7 feet 8 inches front edge and 2 feet back edge. (Better stake out on the lawn, run twine around the stakes and cut your canvas to fit in the outline.) Sew up sides; sew sides together along the ridge; sew in the two-foot back triangle; hem the feet; put in grommets, four on each side and one three feet from the peak on each front edge, and the tent is done. It weighs five pounds and packs 14x10x5 inches.

To set up: Cut three twelve-foot beech saplings. Shove one of them down along the ridge inside and out through the hole in the back. Stick it into the ground, raise the tent and rest the end of the ridge pole in the other two set as a shears. Tie all three together, tie out the front edge to the shears and stake down all around as taut as

she will go. The tent is up, and it has taken about ten minutes. Lately I have added a front hood which can be laced together, reducing the opening of the tent mouth at the top in rainy weather or guyed out to the ridgepole to form a sort of porch in fine weather. It adds one pound to the weight of the tent and takes two yards of canvas.

That last word brings to mind the subject of weight in tents. Many good woodcraftsmen advise against any duck less than ten-ounce, and will even speak of twelve-ounce (which is good material for boards, bed bottoms and twenty-foot army tents). It is purely a matter of the slope. A wall tent with 45-degree roof must have a fly over it to keep out a pelting rain if of eight-ounce duck, or the tent will soon be full of a fine rain mist, which wilts everything inside. In a sharp A-tent this disappears and in all steep-sloped tents eight-ounce is plenty weight enough, and even American drilling, still lighter (almost four-ounce) will do. Goôd waterproofing, however, is necessary in all tents. The alum processes are good and leave the tent still a piece of cloth, albeit somewhat dense as regards rain. Seton and Kephart both advocate the alum-and-sugar-of-lead process. I have always used Nessmuk's lime-and-alum recipe, published by him over twenty years

ago. The chemical basis of both processes is virtually the same—the formation of an insoluble double salt of calcium and alum or lead acetate and alum.

This impregnates the fibres of the canvas and stays there. The tent gains from one to two pounds in weight, depending upon its size. I give Nessmuk's directions here: To ten quarts of water add 10 ounces of lime and 4 ounces of alum; let it stand until clear; fold tent and put it in another container; pour on solution and let it soak for twelve hours. Then rinse in lukewarm rainwater, stretch and dry in the sun, and the shanty-tent is ready for use.

Your tent also needs dyeing. While a passable khaki dye can be had in the woods by boiling two pounds of crushed white oak bark in a kettle of water, commercial "Diamond" dyes in brown or hunter's green are very much easier to negotiate with the home facilities. The advantages of dyeing any old colour but white are considerable both in force and variety. Fewer green-head flies, doodle bugs and carpenter hornets spy your tent and make for it to hunt you up; the sun is less hot and glary in coloured tents, and you are less pestered with objectionable callers when absent yourself.

CHAPTER XII

THE ESQUIMAUX TENT

I DO love to prowl around natural-history museums! Some of my earliest childhood recollections cluster around an enchanted afternoon when I was hustled through the delectable confines of the Philadelphia Museum by an unsympathetic parent. Here were all my embryo collections, magnified to the *n*th power—and *such* specimens! —with corkscrew neck I was dragged through those wonderful halls, and was only torn by force from final contemplation of a cave completely filled with amethyst crystals at the very gates of the institution! The desire to prowl amid the collected wonders of nature has never left me. If I were to add up the hours spent in the American Natural History Museum in New York, the Smithsonian in Washington, the Jardin des Plantes Museums in Paris, to say nothing of similar institutions in London, Berlin, Boston, Brooklyn and Philadelphia—I'll warrant that they would make up a pretty lifetime for a setter dog!

The department of ethnology interests me quite as much as any other, more so, in fact, for here the ways, customs, weapons and utensils of primitive man are set forth, and much of it is directly applicable to our own life in the wilderness when on the far trail. The primitive races were all hunters and fishermen, practising agriculture in a very limited fashion, and storing up most of their sustenance from what grew or ran wild in the forest. Of all the savage races of the world, our own Indian was the most highly civilised, had the highest ideals, was the freest from idolatry, and lived the most logical life for his country. You have only to see him compared to other primitive peoples, as is done in the Paris and Dresden collections, to realise how very superior he was to the bestial and degraded peoples that inhabited (and do yet) the other continents of the world. How superior his art, his religion, his method of living!—the latter surviving almost unchanged to this day in the North, where Nature is still kind to the Redman.

From the snow lands of the Esquimaux to the arid llanos of the Painted Desert everything that the Indians did had a good reason back of it. If, in viewing a specimen of their dwellings, weapons or household utensils, you cannot make out just

why it is formed thus and so, it is up to the beholder to trace out the underlying causes. Every least detail has a practical cause back of it, and if you omit the detail you will find the results not up to expectations. These things have been tried out by centuries of use on our own continent, and for a white man to try to improve on them is simply to go over ground that has been tried out and found wanting long before by the Indians themselves. Some of the reasons seem pretty obscure; one has to actually make the articles themselves to find out why they were made in such-and-such fashion and not in some other way that occurs to the beholder as a possible improvement.

Wherefore, when, while viewing a detail group of the summer home of the Esquimaux, I was confronted with a combination tent and teepee made out of seal-skins, my first question was "*Why* the combination; why not either teepee *or* A-tent as much more economical of canvas per square foot of ground covered?" Down in the Hudson's Bay country we often see the same combination in canvas, a wall tent sewed into a teepee, a sort of adaptation of something that the white man has devised, but the summer camp of the Esquimau was devised by himself alone and has been in use for centuries. The reasons back of it appear to be

as follows: even in the Arctic summer the wind is forever blowing strongly, the nights are cold, snow still exists in the shady hollows, and the dampness of it is in the wind after sunset. Therefore the teepee alone would be not only impossible because of lack of poles, but because it would be too large and draughty; too much headroom for comfort. The A-tent alone would provide suitable sleeping quarters, but that would be about all; no home, no place to work out of the wind and rain, no room to carry on domestic affairs, to store up provisions, implements of transportation, weapons, harness and the like. This the teepee alone would provide, but—here's the big idea—if the latter is made small and an A-tent sewed into one side of it, you would get all these desirable qualities in *one* tent—good sleeping quarters in the A-tent and a fire space, kitchen and "living room," out of the wind and weather, in the teepee end.

This, then, was the *raison d'être* of the Esquimau summer tent, and it at once occurred to me that it would make the finest model imaginable for a winter tent for the sportsman. Readers of "Camp Craft" will recall my published description of the Blizzard Tent, a first attempt towards producing an ideal winter tent. It was in effect a modification of the well-known Hudson's Bay tent, with

triangular ends, instead of semi-circular ones, to save pegs. This tent weighed three pounds, and was six feet long by five feet wide in its main body, and the ends were 18 inches deep, giving a total length of nine feet. It was made of processed light green tent muslin, which any of the outfitters will sell you for forty cents a yard, very light but not very strong. But with such a small area of tent surface we found that no wind that blew could come anywhere near ripping it. The tent was most easily pitched by tying a tent rope around a convenient tree, leading the ridge rope out through the tent and over a low pair of shears and pegging down to ground. Very quickly and easily put up, and, as the tent stood only four feet six inches high, the shears for it were to be cut in any bush. As a late fall and early spring tent for two, when the nights were bitter cold and there was some snow on the ground, it proved a fine thing; in the rear triangle was plenty of room to store duffle and drive a stake to tie the carbide light to; the sleeping-bags went side by side in the main portion of the A-tent, and in the front triangle, by guying out the front flaps and rigging a windbreak, you got a space to set up the tent stove in and do cooking operations. It was a trifle crowded for the latter, and the tent was apt to fill with

smoke and stay filled. Put the fire off a short distance and everything would be lovely, but in midwinter, when the snow is flying, that is just what you do *not* want—you want the whole works inside, out of the wind, where cookee can sit in comfort and manipulate his pots and pans without the wind filling his eyes with acrid smoke and the snowflakes or raindrops swirling in and wetting things down. It made a fine little camp for two, with the fire in the front part of the tent, but I was not satisfied with it for winter work. For midsummer camping it was mosquitoproof with a small net spread across the front flap opening, but at first it was "breathy," that is, your lungs would fill all the rear part of the tent with "old" air and your sleep would not be as refreshing as in an open tent, like the forester or lean-to. So I added a vent cover at the rear peak which went out along the tent rope and was tied fast with tape and grommet, and an opening was cut in the peak about a foot triangular in area and a piece of stout hospital gauze was sewed in there, the flap cut out being left loose and provided with tape and grommet, so that in very cold weather even this peak could be closed up. With this ventilator the breathiness disappeared, all the foul air going out through the peak.

Figuring on the weight of this same tent textile, I calculated that a teepee six feet on a side, four-square and six feet high would weigh two and one-half pounds. The side into which the blizzard tent fitted would have enough canvas omitted to leave a triangular opening five feet along the bottom and four feet six inches high, and, where the walls of the teepee straddled the walls of the tent, there would be a tape sewed outside of the latter with tie-tapes at six-inch intervals, for, of course, without these ties the wind would buckle the side of the tent enough to make a big crack between it and the straight edge of the teepee. My original idea was to set up the teepee, with four poles going up the four edges of the teepee, tie a horizontal brace across the rear pair of poles about the height of the ridge rope of the tent and anchor this rope to the brace, leading out and over a pair of shears and thence to ground. When the teepee was sewed up it came out two and one-fourth pounds weight, and I proceeded to set it up with four poles. I soon saw that it was worse than a camera tripod to get all those poles right and have them stay braced when the strain of the tent rope came on the rear brace. The Esquimaux avoided it by substituting a pole, or two of them, for the ridge rope and carrying the end of this pole in a

pair of shears. However, for campers' use this would get into the dilemma of too many poles, and so I sidestepped them all by using just one pole, a single stout upright eight feet long coming up through the centre of the teepee. To set up you first drove the four teepee pegs in a true six-foot square and tied the four corners of the teepee to them. Next you cut four small sticks, two feet long, and tied them into a 16-inch square by the ties at the open square peak of the teepee. To these a double bridle was attached and then the eight-foot centre pole was cut and slipped in through the hole in the top of the teepee. Next it was stood upright and the tie string at its top slipped under the double bridle. Hauling taut on this, up came the teepee all square, flat and true, and you could draw it as tight as you pleased—some tight in a heavy wind!—and make fast.

The time to do this, plus driving the central side stakes of the teepee bottom, took in all about half an hour—twenty minutes on a sand beach where stakes were plentiful and cheap. Then the tent rope was attached to the teepee pole and the tail of it led down and belayed fast on the rear central teepee peg. The tent was then slipped over this ridge rope and the latter led out over a pair of shears and belayed to a peg in the ground.

The tent was then pegged out taut and the job was done; time, not over three-quarters of an hour for the whole operation. Entrance to both tent and teepee was via the flap of one side, which was left open on the leeward side, and the tie-tapes of teepee edge and tent wall made fast on the windward side. The two teepee flaps on the windward side at the peak were then tied up to the pole top, and the tent was ready for occupancy.

I first set it up this way in the woods of Interlaken, for I was wildly curious to know how a tent stove would operate in the teepee. My own tent stove has been described before in this volume. It weighs two and one-fourth pounds and is a mere shell of 28-gauge iron, bent around the two cooking pots of the forester cook-kit, side by side, and is provided with a top with two stove holes cut in it for the two pots, a detachable stovepipe which goes at one end and a draught-door at the other. As this pipe is included in the weight of the stove, it is shorter than the usual pipe, being only three feet high when extended. How would it work in the teepee? I knew that an open fire would get along all right, though much afraid of sparks on that processed cloth; but with the stovepipe raising the heat outlet up into the peak of the teepee, would it set it afire or get it too

warm or discharge sparks on it, or what? The answer came as an agreeable surprise. I set up the stove with the pipe running up alongside the central pole and a bucket of water handy for emergencies, put on a pot and a pot-cover over the holes and set a fire opposite the draught-door. Smoke, as usual, poured out of the chimney in a heavy column, as always when starting up a tent stove, but the teepee itself acted like a splendid chimney, catching the smoke up in the peak and whirling it outside on somewhat the principle of an ejector. The only thing you had to guard against was getting too much kindling in the stove, so that more smoke was made than the chimney could handle; in which case, like all tent stoves, a lot of smoke would work out around the lids and the pots, filling the tent with smoke. But every one who has handled a tent stove knows enough not to crowd the thing at first and to go light with fuel until he has a bed of coals established. It is the only way to avoid smoke.

You will be astonished at the amount of cooking that one of these stoves will do on a minimum of fuel. Compare it with the armful of good black-jack oak that you used in the open grid fire in cooking the same meal, and then note how a very few chips suffice to keep pots boiling and the fry-

THE ESQUIMAU TENT WITH TENT STOVE IN TEPEE END

SIDE VIEW OF THE ESQUIMAU TENT

ing-pan sizzling with the tent stove. As I look back over my writings on camping I feel that I have said not half enough on this subject; have not half appreciated my own stove, in fact, to say nothing of the many other good ones made by the various outfitting firms.

Well, it was not long before the pot was bubbling, and I got on a fry-pan filled with water, as I was doing no cooking for this first trial in the teepee. This also soon began to bubble and boil over, and I looked inside the stove to see how things were getting on. A small bed of glowing coals under those pots and pans and a few brown chips were doing all this work. I put my hand over the top of the pipe; no great heat there; too warm, of course, to hold it there an instant. I felt of the walls of the teepee up in the peak; they were just comfortably hand warm—nothing to worry about there. Then I poked the fire to get some sparks. Quite a few shot out of the pipe and vanished up the teepee peak in the draught; they were all of the perishing kind. I decided to add a regular spark-arrester so as to catch the kind that do business, as it would add but little to the weight of the stove and would make sure on live-coal sparks.

There was plenty of room in the teepee tent.

It will sleep six at a pinch; it did sleep five the first time it was used. It seemed to me pretty near ideal for winter camping in snowy and blizzardy weather, a tent that weighs six pounds to sleep five men, provide a comfortable cooking and eating space inside, a warm stove all night, and yet leave me half of the tent for use in fall and spring as a canoe cruising and hiking tent.

As sand is very like petrified snow in the way it drifts and acts, it seemed to me that we had here just the combination for comfortable sand camping. It has long been a problem to find just the tent for the Barnegat beaches. All the open tents were impossible, because they offered so much space to be protected from mosquitoes; the closed tents were still worse, because they were hot as Tophet in the daytime and they filled up full of stinging beach-flies if you opened them, and at night the mosquitoes were sure to find a crack from which your breath was escaping and follow it in, to your undoing. Any open lean-to had the disadvantage that it protected you not at all from blowing and drifting sand, and out of many camps at Barnegat I have had few really comfortable ones, while my companions usually dig out for the shelter of the Life-Saving Station after the first tilt with the mosquitoes.

The teepee tent looked as if it had possibilities, and so we took it down for the first Barnegat camp in July. Arrived on the beach after a six-mile row down the bay, we found a gale of wind in progress, as usual; the sand drifting and blowing all over everything and the wind hurling everything bodily into the ocean not actually nailed fast. The teepee tent went up in record time, principally because most of it was pegged fast before any of it was raised up to the fury of the wind. When the pole was finally raised we put one over on Old Man Wind, for before he knew it a taut straight pyramid of light green tenting was facing him on the open beach. At that we had to put such a strain on the bridles that I feared the wind would rip the light muslin to ribbons, but it did not, even though it blew much worse the next day.

Getting the A-tent up was not so easy. The minute it was led out on its ridge rope it flapped wildly and took the united efforts of two men and a boy to get its windward slope pegged fast. However, it was done in time, and the three kids were sent to the bay for dry seagrass for bedding while I foraged for a piece of tin for a stove-bottom, as sand makes poor stuff to set a stove on. I broke off and straightened out a piece of refrigerator door for the purpose while partner

was getting ready the fishing-tackle, set up the stove and laid a floor of driftwood boards all around the leeward side of the teepee tent to keep down the sand tracked into the tent. Then I made a cupboard out of drift boxes, set out the cook-kit and provisions and, when the kids arrived with the floor tarp filled with dry seagrass, I laid it out over the floor of the tent and along one side and foot of the teepee. Then down went the three sleeping-bags for the kids in the tent, while partner and I had ours in the teepee, and then we all went fishing in the surf. In an hour it was time for me to get after grub. Our fishing-hole was full of flounders and the kids were yanking them out as fast as they could strike and reel, while the Littlest Boy amused himself by climbing to the top of the tallest dune and shooting down a sand slide on its face to the beach, twenty-five feet below. Great sport for a five-year-old!

Cooking in the teepee in that gale was not all beer and skittles. The little old stove rambled right along with the boiling and stewing, but every now and then a gust would drive clear over the flaps, curl the column of smoke back on itself and puff it back into the teepee. A taller smoke pipe would have avoided this; it would not matter in winter camping, for you would naturally pitch the

outfit in the shelter of a clump of spruces or a ravine so as to get out of the cold wind, and nothing but a squally gale would annoy you by driving the smoke back down through the teepee. I moved the kitchen out in the lee of the teepee and there had much more comfort. All you had to do was to prepare the mulligan in one pot, the rice in the other, heave in a few chips on the bed of live coals, and go fishing. Half an hour later I would come back to give her a look and everything would be bubbling nicely and a few more chips would be needed. Compare this with an open fire under a wire grate in a gale of wind—how long would the fuel last, how long would you dare leave it, and what sort of cooking would you get? I once left just such an open fire, only long enough to splice a broken tip for the Kid—to find on my return my precious cake scorched to a cinder, the coffee boiled down to lye and the fire burnt out. Not so with the stove!

That night we tied up the flaps and, after fishing until twelve o'clock, turned in, only to find the tent full of mosquitoes and the kids restlessly turning in their sleep. How did they get in? For the flap had been carefully closed and the mosquito-blind was tight. P-s-s-t!—the teepee top, of course! Those devils had managed to light on that

top in a gale of wind and follow down the outgoing draught of air, with its human scent, until they found the nice, fat pickings inside. We organised a war by carbide lamp, drove every last one of them out and swathed the teepee top in mosquito gauze. Then sleep for all! We camped there four days and had no trouble with mosquitoes, though some friends of ours, camping in a closed canoe tent, were routed and retired to the Life-Saving Station, and we voted the teepee tent a good one for sand camping, though I have since gotten up and tried out better ones, described in the earlier chapters of this book.

The next trip of the teepee tent was up to the Y. M. C. A. encampment in the Catskills, where the Honour Lodge begged for the privilege of sleeping in it (how enthusiastic boys are about anything that has to do with the great outdoors!) and six of them were accorded permission to do so. Anywhere you can find a level spot 6x12 feet in area will answer to set this tent upon if well drained, but when I set it up I removed no rocks nor put down any browse, for I slept that night in the original Old Warrior forester tent. However, those boys turned in on the rocks and went off to sleep like stones—I wish I had that hardihood!

All through the fall the "Perfect" shelter tent was used, but when the snows began to fly the first camp in the teepee tent was undertaken. Two of us went on a snowshoe hike in the mountains to see what we could see—mostly tracks. I carried my caribou-skin packsack, sleeping-bag, the teepee half of the outfit, the tent stove and cook-kit, a 1-pound 6x6-foot floor tarp, night socks, mocs, skull-cap, carbide lamp, five pounds of provisions (much of it in the cook-kit), axe and ditty-bag. Partner had the tent half of the teepee tent, ten pounds of provisions, his sleeping-bag and personal duffle. Both packs weighed about the same—27 pounds—and we had our snowshoes slung on our backs when we started out. No firearms other than our revolvers were taken, the latter for practice and a chance at small game principally. When we arrived at the jumping-off spot there was over a foot of snow in the mountains and so we put on the shoes, just for practice, and hit the trail up an old lumber road. I got a crack at a rabbit scurrying off through a snowy thicket, but could not draw quick enough, and partner dropped a hawk which he wanted for a trophy. We did about eight miles, with the keen northwest wind whistling through the forest and the warm sun feeling good at every south bend where the wind was shunted off above

us. In midafternoon we picked out a nice camp site, a ledge on the mountain facing south, with the brook down, maybe, a hundred feet below in the ravine, and set up the teepee tent. All its north wall was tied fast against the wind and snow was banked up a foot along the bottom. The tent end was floored with browse picked from some limbs lopped off a bushy white pine growing near our site, the snow having been first shovelled off the whole site with our shoes. Next I rustled two flat rocks for a stove bottom and set up the little major in his accustomed place, with the pipe running up alongside the pole about four inches away from it. Two snowshoes were cleaned of packed snow and set up for a shelf in one end of the teepee, and on them were set out the kit and provision bags, while partner hiked down to the brook for a canvas bucket of water. I got a tiny fire going in front of the draught-door of the stove, with the front lid off so that the flames could rise right up. A pot was set in the rear hole, half filled with water, and, while my front fire was establishing coals, I pared potatoes and onions for the mulligan, chopped in some cubes of steak, added a handful of rice and a dab or two of macaroni and then pushed back the first coals under the pot, adding more fuel to the fire in front. So started it will

not fill the teepee with smoke, for the chimney will carry off all that is made. A second pot was prepared with water, sugar and mixed prunes, apricots and peaches, a few short, chunky sticks of hardwood were put in the stove and then both of us, feeling the warming-up effect of the stove in the tent, threw off our mackinaws and attended to one of the finest jobs of the day—taking off our freezing wet hunting-boots and changing to warm, dry socks in the grateful warmth of the stove. The wet ones were strung on the rear guyrope of the A-tent, which goes down from the teepee pole to the rear centre side peg, and we put on low mocs forthwith.

The day's work outside was done. My camp mocs for snow weather are "moose-hide"; that is, not buckskin which gets wet if you walk out in the snow, but heavy oiled leather. Then the harsh red sunset in the west warned us that it was time to fill the carbides, lash one to the teepee pole and mount the other on a stake driven in in the rear triangle of the tent. Partner busied himself with this and then with pegging down the floor tarp and rolling out his sleeping-bag, while I mixed my cornbread batter and poured enough for two into an aluminum baking-pan which I always carry for small parties. Raking out some coals through the

draught-door I put them on top of the pan-cover with the cooking-gloves, took off the forward pot, raked back some more coals and covered them with fresh sticks. On the rear hole of the stove went the pan, with its cargo of hot coals on top and the front hole covered with a fry-pan doing duty as a stove-lid. Into this pan went a nice steak for two and, with it covered with a tin plate, I cleaned out the batter-mixing pan and poured the fruit stew off into it. Two cups of water next went into the former stewpot, and it was high time to go digging for my cake pan, for one must watch it to see that it doesn't burn. A peek inside showed the cake fully risen, so the pan was capsized and put on top of the stove, where it could get plenty of baking heat, but would not likely burn. Some undivided attention to the precious cake for five minutes more ended with a perfect golden specimen, ready to be set leaning against the stove to keep warm—still in its pan.

Back went the steak for a finishing; a sniff of the mulligan, and in a few minutes more the steak was set aside, while a pot went on in its place to boil up for tea. Last ceremony: Already the mulligan is being poured out into two waiting tins, the steak is finishing on the rear hole; butter, cow-can and sugar-bag are produced, and the cake

is tipped out of its pan smoking hot and divided between partner and me. Good with butter and mulligan. Now the tea is set off and steeped; a potful of water for washing up goes on in its place, and we divide the steak, more cornbread, and two big cups of bully old tea are poured, "cowed" and sugared to taste. Then the stewed fruit; the pipes are lit; the stove fed some more hardwood, and we wash up and put away the kitchen in the rear of the teepee.

It was snowing again outside, and dark, pitch dark, by this time, and the wind was howling over the mountain, but we were warm, light and comfortable inside the teepee tent.

Keep trash wood out of the stove; it does not pay, and you are forever feeding it. Oak, maple, blackjack, birch, pignut hickory, these are not only very much hotter but last infinitely longer. I spent some time lacing up my sleeping-bag and then went out and prepared night billets for the stove. Two split logs of oak, four inches thick by a foot long, are the medicine.

During the evening of story-telling and smoking we fed her fresh small sticks of one and two inches diameter at intervals until we had a deep bed of coals, with the draught-door almost closed. Then, after the carbides began to dim and give hints that

bedtime was at hand, I put on these two billets, put on the lid-covers and turned in. I do not know when they burnt out, maybe three hours later. The process is a charcoalising one; slow combustion with no flame and no smoke; you will see it in your own hearth fire happening to the last log left in the ashes over a bed of coals.

Next morning bacon, eggs, coffee, cereal and cold fruit from last night, and then a fine day of tracking and exploring in the snow. The teepee tent had made good as a winter camp outfit. Any one can make one; no one has any patent on it, for the Esquimaux invented it long before they saw the first white man.

CHAPTER XIII

MAINLY ABOUT TENT STOVES

"Some stove!"

These words were exclaimed with admiration for about the hundredth time that trip, as we sat perched on the bough bunk at the back of our warm, cheerful tent, while a raw nor'easter howled through the forest outside and our little stove sizzled with occasional raindrops and gave out heat like a furnace. Atop of it a mulligan pot shot out steam under its cover, while a fry-pan, with a couple of dissected partridges inside and a deep dish inverted over it, sautéed our supper meat. A collection of wet socks hung from the tent flap over the stove, while our hunting boots turned up their soles judgmatically for the evening's drying.

"Some stove!" My thoughts contrasted it with an erstwhile campfire, and the tent so full of smoke that wet, scalding eyes would be the rule instead of the exception; contrasted its tiny firewood pile of dead oak billets with the heap of timber that would

be needed to keep a campfire going; contrasted its secure pots and pans with ones on a campfire that would need careful watching. And then my memories idled back a couple of years to a big-game hunt in Montana, and again there was the tent, and the wet socks a-drying and the soaking hunting boots disposed around another and larger stove, with an oven in it in which a batch of cornbread was rising, while mulligan, tea and fried elk steaks were sizzling atop. A blizzard was roaring down the mountains, and two feet of snow already weighted down the spruces, but inside the tent all was warmth and cheer, while four men looked admiringly at the little red-hot demon that was making all the comfort. It was up to some one to pass an appropriate remark. "Some stove!" had not then been invented, but Big Johns was equal to the occasion. "Waal," he drawled, "a feller could shore git almighty doggone hot a-settin' on that there stove!"

Yes, sir, I'm a convert; have been for these last four years. I love a pretty, cheerful campfire, and never fail to kindle one for its light and warmth; and in summer fishing camps I use one or another form of cook range campfire. But on a hunting trip in the mountains, where you get ice in the pails every night and have plenty of snow, rain and

cold weather, the really practical dope is a tent stove. You can have them of any weight from 2¾ pounds up, collapsible and non-collapsible; the latter, as they go over your cook kit and can be used to pack things in, taking really no more actual room than the collapsible ones.

This preachment was written after a week in the hills of north Jersey, where we scared up over ten partridge a day, and could have killed the limit every day, and our tent stove figured as the hero of the trip. Like most populous states, New Jersey has had to enact very stringent fire laws. So much damage has been done to the forests from roving hunters building indiscriminate and often carelessly left campfires, that the State has been forced to protect itself against the forest fires that result. Some time ago my boy and I stood looking across the wide Morristown plains, at the tumbled heaps of forested mountains that fill the northwest corner of our State. Of every shape and size, shrouded in cloud and mist, the big fellows stretched far and wide, like huge, green sea billows.

"Oh, Boy!" chirped my youngster to his dad. "wouldn't a week in those hills after partridges, come November, be great!"

It certainly would! We planned to strike in

there with our packs on our backs, about the 9th of the month, camp in some wild ravine in good partridge country for a week, and hunt those hills far and wide. The question of a permit to build campfires at once came up, for the fire wardens arrest any one with a campfire and no permit to build it. I wrote my friend, Mr. Wilber, Chief Firewarden, at Trenton, for a roving permit, but found that this cannot be granted; you must look up the firewarden in the township where you are going to hunt, and, if in his judgment it would be safe for you to build campfires in the mountains under his jurisdiction, he issues you one. If a forest fire results from any act of yours, you must pay the entire damages therefor, and maybe a fine besides. After the prolonged dry season that we had that year, the November woods were a foot deep with bone-dry leaves, and I doubt whether any warden in those mountains would issue a permit to any one to build a campfire, so dangerous were the conditions. And, suppose the township you picked out proved gameless, and you wanted to move further on until you struck wild country that had plenty of game?—how about a new permit, with maybe twelve miles to hike to hunt up the warden?—Nix!

Wilber suggested that the best way to obviate

the whole permit question was to take along a collapsible stove, as confined fire does not come under the same category as the open campfire, and no permit is needed anywhere for a tent stove. We decided to follow his advice. We took the two-hole Forester tent stove, designed by me some time ago. It just fits over the two pots of the Forester cook kit (all the regular makes of cook kits have a sheet-iron stove that fits over the largest pot). This stove weighs 2¾ pounds, including its two-joint pipe. With its pots in place and the lids underneath, the pots being filled with small food bags and condiments, the whole was wrapped in a dark green oil cloth tarp, which goes under my sleeping bag at night, and then it rode on top of my pack, held there by the straps for the purpose.

The Kid and I were the whole party, for all my friends were either away on other trips or had some other kind than an exploration trip planned. We figured on sixty-five pounds as a total load for the two of us, twenty-five for him and forty for me. Such a load you can pack in over the mountains anywhere, without special fatigue, and we selected a spot on the map six miles in from the nearest railroad station, in a deep ravine, between two mountains, with a brook flowing down it. Such spots are sure to be forested, as the country is too

rough for farms, and so this proved to be when we got there.

Our loads were: grub, 25 lbs.; 2 packsack sleeping bags, 14 lbs.; stove and cook kit, 7 lbs.; tent 3½ lbs.; pillows, night socks, night toques, lantern and candles, rope and odds and ends, 4 lbs.; tarps and ammunition, 5 lbs.; axes and knives, 6½ lbs.; total, 65 lbs. Our grub list for a week in the mountains included: 2 cans beans, 2½ lbs.; 2 cans evaporated cream, ¾-lb.; 3 lbs. flour, 1 lb. pancake flour, ¾-lb. corn meal, 1 lb. "Wonderful" bacon, 1 lb. prunes, ½ lb. butter, 1 doz. eggs, 2 lbs.; 1 doz. potatoes and 1 doz. onions, 4 lbs.; 1 lb. rice, ½-lb. coffee, ½-lb. macaroni, ¼-lb. salt, ¼-lb. baking powder; ½-lb. tea; pepper and Steero beef capsules, ¼-lb.; 2 lbs. sugar, 1¾ lbs. steak, ¼-lb. sliced ham, 1 lb. apples. Total, 25 lbs. This list presupposed two partridges and a rabbit a day, as the minimum bag for the guns, or, if the birds are scarce, make it two rabbits and a partridge. It may be reduced somewhat for two men, but a growing boy just in his teens requires two men and a shovel to keep him fed, and he will eat you out of house and home if you let him.

We had plenty throughout the trip. The steak did for the first night, and apples and ham with some graham crackers picked up in the railroad

station for the first lunch when packing into the mountains. After that we had a big feed for breakfast, usually coffee, cornbread, apples, game meat, and corn mush or rice, bacon and eggs; got off at eight o'clock and hunted until about four, with a bite of cornbread and bacon at noon, and then another big feed about six o'clock, allowing an hour to get it cooked. Our mulligans were made of game, onions, potatoes, macaroni, and rice; and the breadstuff usually biscuits or squaw bread, and our meat was partridge sautéed in the fry-pan. The bag limit is three, but you are lucky to get two partridges a day, as they are wild and foxy, and you will get about six good shots in a day's hunt, and are doing well to make good on two of them without a dog.

We packed over about two miles of farm roads, and then got into the mountains, where, after climbing two forested ridges, we arrived on one that looked over a sea of brown hills, with a great valley far below us and a brook in it. A grouse jumped, just behind our lookout rock, and a rabbit hopped from some mountain briers at our very next step. We had found our country at last! And we pitched down into that valley until we were on the mossy rocks at its bottom, and the frowning walls of the next ridge rose abruptly just in from

us. Another grouse jumped from the ravine side as we packed down, so we named the campsite, "Camp Pat," in his honour. Owing to the prolonged dry season, the leaves were like blown tinder, and no water was in evidence in the brook, but down in the crevices between the mossy boulders we found wells of it, on which a chip drifted downstream, showing that it was flowing. The first thing to do was to clear away the leaves around the fire site, and this the Kid got at with a witchhazel branch, while I searched the ravine for a couple of big, flat stones for a base for the stove. These hauled into camp and levelled, the stove was unpacked and set up. The pipes for it went side by side on the Kid's pack, wrapped in his tarp, and a slice of steak tightly rolled in paper filled each pipe—a good way to carry raw meat. Most stove pipes are made telescopic, but they will not remain so after the first few camps, as they get out of round and caked with soot and rust inside, so many outfitters supply them just to joint together with a draw at the end of each section instead of trying to telescope them.

It didn't take long after this to set up the Blizzard tent on its ridge rope, run from a convenient sapling over a pair of shears and across to another sapling not necessarily in line with the first as the

shears take care of that. Then it was pegged out, with the front flaps on each side of the stove, and the tent was filled with dry leaves to the roof. Packing these down we spread out the tarps, hove in the packsack sleeping bags, and established the grub pile. Soon a fire was going in the stove, a mulligan of onions, potatoes, macaroni, rice and beef capsules went in the front pot, and tea in its pail on the rear hole, which is always the hottest. The mull. takes 35 minutes—as long as fried steak and tea combined. When the tea water comes to a boil, set off and start the steak. Fifteen minutes later it is done, set back the tea pail, when it will boil again in a minute or so, and then add your leaves. Four minutes later they are steeped, the mulligan is taken off and its soup served, while the residue goes back on the stove again. When the soup is eaten, serve the steak and stew on plates, with tea on the side. Stew some prunes, or serve "as is," the latter being quite as acceptable with high-class prunes, the 20c-a-pound kind.

A well-managed tent stove is a delight; a poor one, a fume factory and a misery. Do not cuss the stove out; study it and see *why* it smokes. They all draw fine if you do not attempt impossibilities. For example, to make your chimney draw

requires a column of hot air in it, nothing else. The length of the pipe doesn't matter much. The Forester stove pipe is only 28 inches high, while most of them are in three lengths averaging six to nine feet, but they all draw equally well, or poorly, depending upon whether they are hot or cold. When you first start the fire the smoke doesn't know where to go and so bursts out around the lids or pots, filling the tent with smoke. Cause, no heat in the stove-pipe. Remedy, take off the lids and let the flames rise for awhile until you have some coals in the stove and some body to your fire. As soon as you put on the lids again the flames at once hunt every opening, and so find the chimney hole right off. A few moments later the chimney is hot and a column of hot air established that will draw like a major.

Again, do not let your fire burn down to a few live coals and then pile on a lot of wood, for she will smoke you out in five minutes. Cause, not enough heat and too much smoke for the chimney to take care of. Remedy, open a lid, take out most of the billets and build up your fire with small wood that will kindle and make a hot flame, when you can add larger billets at discretion.

After the evening meal is over and the hot water pot on, you light your pipes and begin to

think of bedding and comfort. Add, as fast as possible, billet after billet to the stove so as to build up a big pile of live coals. As soon as the flame is out of them and you can see that the stove is full of charred wood with a little reddish flame curling off it, close down all the draughts and let her glow. Do not attempt to pile a lot of wood on a meagre bed of live coals or she will smoke you out and kill her own fire. And, often you will find that with a few billets inside she will lose her flame and begin to smoke. Do not permit this; take off a lid and blow the wood to flame again, when she will go on nicely, making flame instead of near-flame, which is the acridest of smoke. If she smokes, study the stove; it is you, not the stove, that is at fault. They are a joy—judgmatically handled.

In the morning we had four cooked dishes to handle on a two-hole stove, and to bring them out all cooked at the same time required judgment on the part of the cook. You want coffee, bread, cereal, and fried meat. Get on the coffee pail and cereal pot first, while you mix your batter for cakes or cornbread, or your dough for biscuit. My baker is a little aluminum stew pan, 1¼ inches deep by 7 inches wide by 9 inches long, outside measurements. It has an aluminum cover held on

by the handle, which folds over it and hooks its end over the far rim. Aluminum makes a fine baking utensil because it has three times the conductivity of steel and so distributes any extra heat all over its surface instead of permitting it to localise and scorch, as steel will always do, no matter how carefully handled. I always have cornbread for breakfast, as it is so easily made and sticks to your ribs far longer than biscuits or pancakes. Into the mixing pan, a cup of flour, ¾-cup of corn meal, a heaping tablespoonful of baking powder, ditto of sugar, a half teaspoonful of salt, and stir all together. Break in an egg (throwing shell into coffee pail, which is simmering on the stove) and add milky water from a cup, stirring thoroughly until you have a thick batter, which will just pour with the help of a spoon. Meanwhile, the Kid has been heating up a heaping tablespoonful of butter in the baker, smearing it all over the walls and lid of the baker with a dried leaf, and now he pours the remaining melted butter into my batter while I stir it around. Next the whole batter is poured into the pan, filling it a little over half full, the cover is put on, handle snapped down, coffee taken off stove and set to simmer on the rock alongside, lid comes off rear hole and baker is set in the hole. Inside is a glowing mass of live

TENT STOVE AND REFLECTOR BAKER

THE AUTHOR'S TENT STOVE IN MOUTH OF BLIZZARD TENT

coals. A few minutes later a peek under the lid shows that the cake has risen until it just touches the lid, when it is capsized in the hole and its top face baked. About five minutes later a wisp of smoke curling from the baker tells us that the cake is browned on that face, when it is again capsized and baked on the other side until the same wisp tells us she is done. Then the baker is taken off and propped up flat against the side of the stove, with a rock to hold it there, and its place is now taken by the fry-pan, with grouse or rabbit chunks in it, a deep aluminum plate over it, and a cupful of water in the pan.

All this time the cook has not neglected to feed in regularly billets of dry wood to keep the stove going, for live coals have a great way of burning out and do not last like anthracite; also to give his cereal pot a stir now and then. When the game is nearly done he takes off the cereal pot and serves, putting it back on again filled with spring water for washing up, and we fall to. "Cow" and sugar are passed, until the sighs of feeding huntsmen, filling empty bellies overnight, fill the tent. Now the game is speared out of the fry-pan and a rich dope is made of the left-over gravy with flour stirred into it, while the baker is rescued from behind its rock and out of it comes a fat corn cake

that quarters to four big hunks of rich cornbread. Coffee is poured out of the pail, two cups to each man, a rasher of eggs and wonderful bacon rustled in the fry-pan while you eat—a man can hunt his head off on that grub!

Then pipes, wash up dishes, put all raw food in pots or hung up where small prowlers cannot touch it, and we are off for the day's hunt. A steep climb up a half a thousand feet brings us to the ridges, and presently we are at a lumber slashing where the grouse love to hunt beetles and to dust in the open. We advance abreast, with guns at a ready—oh, for a good bird dog! (but that would be one more mouth to feed, some day we will try making him pack in his own food). Suddenly—*"Whirrr!"* "Mark!" shouts the Kid, his gun barks, and through the coppice I glimpse a couple of grey shapes with flashing wings.

We mark them down and walk ahead. A hundred yards, one-fifty; where are they, anyhow! All of another sudden—well, you know the rest!—he got up right over there to the left and perhaps you poled him over with a snap, or perhaps you never touched a feather. Or, most likely, far behind you a muffled roar told you that Mr. Pat had let you walk right over him and then made good his getaway when you had gone ahead, clear out

of sight! It's the royalest sport of all bird shooting, and being without a dog makes it doubly difficult, for you get no warning whatever. We had a week of it in those mountains, and considered two grouse a day, with maybe a bunny or two thrown in for good measure, a good bag. It takes a snap shot to get those fellows with any regularity, and so the Kid and I have planned a course of snap shooting with the hand trap this winter—but that's another story. "Pat's" harder than quail? —gee whizz, yes!

Sunday we spent fixing up camp. There is not a level spot a yard square anywhere in that country, so our tent was pitched on a considerable slope. I got no sleep the first night, in spite of the comfortable bed of leaves, for we were always sliding down hill out of the tent and ramming the stove, so Sunday we fixed up a rig that may interest you. First, we cut a 10-inch log long enough to go clear across the tent, staked it in place, cut a lot of poles about 1½ inches in diameter and laid them level, six inches apart with their upper ends dug in the ground and the lower ends resting on our cross log. On these went a brush pile of small, springy twigs, maybe six inches thick, and on this the tarp, with a thick bed of leaves atop of them. Then the sleeping bags,

laced together so we could back up against each other on cold nights, and we had a comfortable, level bed in a slopy country. To get head room enough with our wedge tent and this high bed, we simply spread out the roof with two withes about three feet long, bent over the ridge rope under the rear and front gore seam. This made a hip roof to the tent and gave us a lot more room.

Our Montana stove was non-collapsible sheet iron, with an oven in it, which is a tremendous convenience—a real necessity, when you have four hunters to feed. We also used the reflector baker which I brought along in my outfit, and it baked very well, put up against one side of the stove, said side usually being red hot. The two together managed to keep us fed on time, or sometimes spruce grouse would be baking in the oven while biscuits or cornbread would be cooking in the aluminum baker. None of the Eastern outfitters list a stove with oven inside, but there are plenty of plain box ones, one, two, and three-hole, about 10 by 12 in. by 18 to 36 in. long, and they all are furnished either folding or non-collapsible. The former style is preferable, as, even though the box stove makes a kind of trunk to hold all the kitchenware and part of your grub, it is rather an unwieldy shape, except on a canoe trip, where it

would make a fine centre parcel and you would obviate the necessity of setting it up each time and maybe losing one of the small bolts. Our Western stove, because of its oven, would pack nothing but what could be stowed in the oven, and it required rather short billets of wood, but, as it rode on top of a pack load, outside the diamond hitch in a squaw hitch of its own, it was not at all inconvenient. We ran into a better one in a cache in the mountains, owned by the uncle of one of our party, and therefore borrowable so long as we were on that site. Here the oven was almost as big as the stove and packed inside the box of the stove, but to set up you attached the oven so that its draught matched a flat draught hole in the rear upper corner of the stove box, and from the oven the chimney pipe led out. The hot draught from the box stove encircled the oven and passed out through the pipe and so you could use long man's-sized billets in the box stove, which would smoulder all night with the door and bottom well chinked.

For permanent camps with board floors to the tents all the outfitting firms make a portable camp stove with legs and bottom, the whole outfit, including oven, hot water tank, pans and utensils to fit the stove, being packable inside the stove, so

the whole works can be put in your big camp chest. These are a great convenience to the all-summer camper.

None of these tent stoves have any bottom, though one with legs attached can be furnished for an extra price. A bottom is, to my mind, a nuisance on a roving camp, an extra weight, and very hard to keep flat, for the coals are apt to get right down through the ashes onto it, heating it red hot and buckling it out of flat. Better set up on a flat stone, and one not too flat at that, for it is easy to chink up irregularities with small pieces of stone and ashes, but hard to manage the draughts on a perfectly flat stone, for you then have only the door to depend on. There are times when you could use *two* doors, to provide air enough for complete combustion without overmuch smoke, and it is then easy to pull out a few chink stones, putting them back when the wood is well flamed out and down to coals or charred to charcoal. All these stoves without bottom run from 15 to 22 pounds in weight, and are worth their taking a whole lot, for a party of four or more hunters in cold or snowy weather. Just the saving in firewood labour, in smoke, and in the fact that the tent can be partly closed around a tent stove, making it warm and comfortable even with

a blizzard blowing outside, is argument enough for their use. With an open backlog fire not only is the fuel problem serious labour and loss of hunting time, but the smoke nuisance is a matter of continuous smarting eyes and your raindrops or snowflakes are driving into the tent if a strong wind is gusting about, as it usually is in cold weather.

The round-end box camp stove is another favourite, same dimensions and weight as the square-end, but non-collapsible. It is very strong and will pack the cook outfit pails side by side, besides its stove pipe on top of the pails, so, for a canoe or horse-packing trip it is a good choice. Weighs from 15 to 21 pounds.

While any stove less than two-hole is a hard thing to get a meal on, for a tent stove that can rustle breakfast also, the one-hole cylindrical 12-in. diameter by 12 inches high is a good purchase, and it costs only three dollars. It can be filled up with wood chunks at night, and the draught chinked down, when it will run all night and warm a large tent. It is not a very good cooker, as the top is so high from the bed of the fire, and the hole too small to let any pot down in it to the coals. However, there is room on top for a fry-pan and a coffee pot at the same time, and, with

some quick-cooking cereal like two-minute oatmeal, you can get breakfast all right on it, and stew a mulligan at night while you broil game meat on another fire outside. The weight of this stove is 11 pounds.

I originally intended to make my Forester stove of this shape, of a light cylinder of 22-gauge sheet steel, to just hold the two pots of the cook kit end to end in it, but I could not plan any way around that one-hole difficulty, until I came to realise that the same metal, wrapped around the pots when side by side, would give you a two-hole stove that would weigh about the same as the cylinder. The rest was easy. Door at one end; pipe outlet at the other, down at the bottom of the stove, so that a pot in the forward hole would not block the draught. Then a stout bridge between the two holes, two lengths of 2-inch stove pipe, 14 inches long, so as to pack in the stove, and you had it. So made, in sheet steel, it weighed 2¼ pounds, all told. I originally intended to use the aluminum pot covers for stove lids, but they stick abominably in the holes, owing to the great expansion of aluminum when hot, and you want the covers on the pots most of the time, so I added two stove lids, bringing the weight up to 2¾ pounds and so had a fine hiking stove. Originally the pipe telescoped,

but it stuck and rusted and got caked with soot and sand which I had no time to clean out, and now I use the two pipes with a tight draw at one end so that they go together like an ordinary stove pipe. It will run several hours, after a final filling at night with oak or hardwood billets about 1½ inches in diameter, or a big billet can be cut and split in half and got over the coals by lifting up the stove, putting it on the coals and letting the stove come down over it. Here it will burn for a long time, but do not try it without enough coals to keep up your draught or the smoke will come out the lids instead of going up the chimney.

In a country where half the stove wood is sparky hemlock and spruce, a spark arrester is a necessity, for all paraffined tent fabrics will take a spark and make quite a hole of a small hot coal. The arrester is a nuisance, as it is continually filling up with soot and ash, but it is necessary, particularly if the stove is inside the tent and its pipe passes up through the roof. As the tent flaps must be left open in any tent to guard against asphyxiating gases from the stove, we have always put our stove out just in front of the tent, with the front flaps guyed out to enclose it with just entrance room for a man to get inside around

the stove. Our chimney top is thus out of harm's way, for any sort of cross wind will carry any sparks away from the tent, a wind directly into the tent being the only one which would blow sparks on it, in which case we would most probably turn the tent around. Usually we have been lucky in our wind judgment and wind shifts, so that only once in the last four years have we had to turn the tent around, which was not much of a matter anyway.

The convenience of campfire grates is well known to every man who hits the trail often, but a new thing in camp grates, half a stove, has lately come on the market, and ought to have mention in this chapter. You all know the effect of a strong cross wind on an open campfire, how it sweeps the heat from under your pots, so that they are twice as long coming to a boil, and how you always built a stone or earth windbreak to remedy this trouble as much as possible. In this new grate, three sides are of folding sheet steel, with hooks inside on which your grate is hung. You thus have instantly, legs for your grate and a wind break on three sides of your fire, leaving the open side free to feed the fire and set the reflector baker up against. Any experienced camper can see at once what a vast improvement over the

ordinary open campfire this form of grate is, and, for a large party of six or eight people, on a canoe trip or almost any form of transportation, it is one of the best devices of the kind. It is made in one size, 18x10-in. grate, folds 19x10x1 inch, and weighs 5¾ pounds.

Finally, and most importantly, the whole subject of camp stoves hangs on the use of ten-cent cooking gloves. With them you can do almost any stunt about a cook stove with impunity; without them you will be burning your fingers half the time. Be sure to take along a pair, and don't lose them. Flipping the pan baker, turning around the baking pan in the reflector baker, picking up the latter, lifting off and on stove lids, handling hot pots, adjusting fire brands and live coals—all these things you can do with impunity with a pair of cooking gloves on. The last pair, my oldest boy bought for me just before we set off. Remembering the unspeakable sooty white ones, used some time ago, and the brown ones of the last two years, which have always been too palpably dirty after the first day in camp, he used the discretion of his years this time, and bought—black. Now, I'd probably have never thought of that!

CHAPTER XIV

AUTOMOBILE CAMPING

The fact that any well-built car can penetrate into all good game country, outside of the big game localities reached only by canoe or mountain and forest trail, has led to a continuous development of its use as transportation to good hunting and fishing grounds. As many of the best of the latter are located where there is no inn, and so far away that a return home leaves but little time for sport, some sort of camping adjunct to the automobile has been very desirable. It was soon realised that the car itself made an excellent framework to secure at least one wall of the tent to, and so especial designs were made to fit an automobile frame, with a jointed pole carried in the car along with the other duffle, and this tent, called the automobile tent, was put on the market, in sizes from 8¾x7½-foot area, with 8-foot centre pole and 4½-foot rear wall, weighing 21 pounds, to 10¼x8¾, same pole and rear wall height, weight 26½ pounds. In design this

tent is virtually the so-called "Snow tent." Its rear wall is secured at three points to the automobile frame and the side walls slope down to pegs in the front in long triangles. The front was nearly an equilateral triangle, 8¾ feet on a side, and the top a short ridge extending backwards some 30 inches, after which it sloped down to the rear wall. Such a tent reflected fire heat well, gave plenty of room to stand up in dressing in the front part of the tent, and slept four men on the floor or three with folding camp cots.

It became at once very popular with automobilists, and is still so. As the car cannot get far in from a road, and good level tent sites, near spring water and yet near an accessible lumber road, are hard to find, the automobile camping idea developed still further in the automobile trailer, in which the entire camp,—tent, cots, kitchen and ice box,—is carried on a two-wheeled trailer so as to be immediately available as a comfortable forest home. One of the troubles of camping with an automobile is that the party is limited below the seating capacity of the car because there is no room for all the duffle. I suppose I have been on two dozen automobile camping trips where we had to pack in any old way, perched on our duffle, with part of it lashed on behind, some of it on the run-

ning boards and some tucked in on each side of the radiator—but still the back tonneau was crowded with duffle bags, and a car that could have taken six was limited to four. And, when you add in a couple of husky setters and pointers, none on particularly good terms with each other,—good night!

My first experience with trailers was a little one to carry our boat that we got up out of a pair of wheels, a tongue, and a spring from some defunct farm wagon. In the Croton reservoirs the bass are temperamental; will bite savagely in one lake and refuse to feed at all in the next, and there is no known law by which they regulate this custom, so that the only way to be sure of a day's sport is to keep going until you strike a lake where they are biting. Our boat, like all others, had a Water Department registry number on it, so it could be used in any lake, and we lashed it upside down on the wagon wheels with the tongue lashed on top of the tool box behind the little Ford, and away we would go across country, making about 22 miles without distressing the trailer. Arrived at a lake, overboard would go the boat (she carries three and two could carry *her*) and we would be plugging or giving 'em frogs or crawfish or helgramites,—any and everything—until convinced that their majesties were feeling indisposed

that particular day. Then, on again, with the boat on the trailer, to the next lake, until we hit it just right.

The trailer has been developed from such simple ideas to a complete house, with four cots, two on a side, or double tiered, a galley and ice box and a tent pulled over all, and the whole works can be unlimbered in some fifteen minutes and limbered up in about the same time. At first the builders did not realise that everything about such an outfit will shake loose on the road unless every bolt and nut is secured by cotter-pin, or else upset, and the troubles from falling apart due to road vibration were so aggravating as to cause many dealers to abandon the trailer altogether as a nuisance. But as now made, with stout artillery wheels, and all jointed parts secured by cottered nuts, you will find your trailer in good working order when you come to unlimber at night, with no important bolts and pins missing at the roll call. It is the same problem that the artillery in the Army had to face—even the cotter-pins themselves had to be secured with a bit of chain so that *they,* too, could not get lost during the wear and tear of the campaign.

As the trailer industry is a new one and has grown to considerable dimensions, we will have a

look at some of the leading designs. Our illustration shows one that appears to be the last word in comfort and substantial construction; the top is of wood slats and rubber-coated fabric, similar to the well-known wagon top, and this is raised by hinged and locked uprights so that all you have to do is to poke it up, one end at a time, with a stick, when the top assumes its place some seven feet above the floor of the trailer. Next, the outrigger tent rails are swung out and the side walls of the tent pulled out over them, and then the beds are swung out horizontally in their frames and their outboard feet let down to the ground and the tent walls secured over them. And these beds are of woven wire springs, with a regular mattress such as you would have at home. They are double, 42 inches wide, sleeping two each. A folding table is set up on the trailer floor with the beds as seats, and the ice box is pulled out sideways from under the trailer, always accessible, the denatured alcohol stove lit up, and soon you have a feed ready to serve in the trailer. Even in bad weather, with all the flaps pulled down front and rear, you still have plenty of light, for the tent roof has a celluloid skylight of large size on both sides. This trailer weighs about 600 pounds packed, and has

CAMPING WITH AN AUTOMOBILE TRAILER

artillery wheels and solid box construction when packed for the road.

Another way of getting at the same thing is exemplified in a design which is not a trailer, but a compact camp home to be carried on the running board. When packed, this is a stout lacquered box, 11x18x48 inches. Inside it are a full sized double-decked bed, with two wire springs, two mattresses for the beds, two camp stools, and a wall tent, 7x8x7 feet to the ridge, while the box itself is a table 3x4 feet when opened out flat and its interior legs let down and locked. When unpacked this outfit sets up to give you a wall tent and a double-decked bed for four, the frame of the latter being also the frame of the tent. It weighs altogether about 160 pounds, and leaves you plenty of room in the car for personal duffle bags and food bags, cook kit and the like.

Getting back to the trailers, another good design shows what can be done with the wall tent in combination with the trailer. In a word, it gives you a very simple and easily erected outfit which can be set in less than ten minutes with a minimum of jointed poles. The central frame is set up in sockets in the trailer body, and the two beds, both double width, when opened outboard and their outer legs let down to ground, carry with

them the two spreader frames over which the eaves of the wall tent fit. It is then a simple matter to spread the tent over the frame and peg down, and your nomadic home is ready for service. A folding table is carried to set up inside on the trailer floor, and under the trailer bottom is a double tin-lined ice box and provision box, the former 10x14x28 inches, and the latter 12x15x28 inches. The weight of this outfit is 650 pounds, and the trailer is substantially built, with artillery wheels, a body of tough quality woods, enamelled and ironed, which can be used as a commercial trailer wagon when not out on a camping trip.

The draw-bar mechanism of all trailers has, of course, received considerable study by the engineering force of the manufacturers. The original lashing scheme used in makeshift converted farm wagon parts has been replaced by universal ball and socket joint devices, with springs to absorb shock, and a special fitting for attaching to the body of your car. This draw bar must exert its pull at all angles, both horizontal and vertical, and must both give on sudden starts or jounces in going over "thank-you-marms" in the road and take up by spring action when the car is suddenly braked or stopped, when the momentum of the trailer will take it ahead. The speed at which

most trailers are guaranteed is 40 to 50 miles an hour, so that in all the best makes the draw bar is of best quality steel, with ball and socket or universal joint.

It is not surprising that the advantages of a gambrel roof in giving more headroom above the berth should have been seized on by the designers of automobile trailers. Another trailer design uses such a roof, gotten by the addition of an extra pair of frames on each side. The central frame is as before, but in addition to the spreaders running out diagonally to points a short distance above the outer edge of the beds when set out, there is a second pair of spreaders, running up to take the angle of the gambrel, thus giving more headroom inside the tent. Otherwise this trailer follows the general design of the best constructions, with wire spring beds, stout artillery wheels, and solid wood box heavily ironed. The lower uprights of the frame are, however, steel angle irons rigidly rivetted to the box, giving greater strength and less liability to breakage and coming apart of lighter-jointed constructions. The tent is folded down between the four uprights and there is still room for a boat or canoe to be carried, lashed securely in between the four steel uprights.

If you so design the trailer that the beds simply

tip up inside the box on sliding hinges, you will have not only a quick and simple way of handling the beds, but considerable space inside available for all sorts of camp duffle packed in the space between the beds. Furthermore, the feature of standing lower uprights, about the height of the beds when tipped up on edge, can be retained, and the tent body is then pulled down, with its roof frame top down to the top of the uprights and you have a somewhat higher trailer astern than the more collapsible models, yet one easier gotten up and having more packing space inside, and these ideas are embodied in still another trailer. In general, the construction is similar to the best standards, with solid wooden body available for commercial work, and a strong steel ball joint coupler to the car. To open out, the top frame is simply shoved up to full height and pinned, the spreader frames stretched out, and the tent expanded over them and the beds tipped over outwards and their legs let down to ground, when you have a camp home for four immediately available. A rear window of celluloid panes lets in light at the back wall of the tent, and the folding table is set up inside, food prepared from the box and galley in boxes at the rear end of the trailer are gotten into commission and you

have your camp. When in the course of a trip if one strikes a bit of stream or a good hunting upland contiguous to the road, one of the things one does *not* want to do is to pass it up and go farther, to possibly fare worse, and finally end up in some roadhouse emphatically of the kind where comforts are rural and the grub old stuff brought up from the city a year before. Here is where the trailer shines. Like the hunter with his pack on his back, your home is right with you; camp is where *you* are, and you do not have to pass on with a sigh or get up at unheard-of hours to make a trip before dawn in the car to be on your grounds by daylight.

With the idea of having the largest possible space overhead, a final trailer design shows the central top canopy considerably wider than the body of the trailer, thus giving a steeper slant to the wings, and making wider spring beds available. This trailer has fixed lower tent supports and the upper ones which take the roof lean outward from these fixed supports, carrying a folding frame roof from which the side wings come down. These wings are of double construction, the outer being a fly which can be guyed out for shade and comfort, and the inner a large window of celluloid panes. This gives a roomy house of

the space inside the trailer, in which are a two-compartment ice box, a two-burner stove and a collapsible table. In all other respects the trailer follows the best practice, of heavy, sturdy artillery wheels and steel universal joint coupler. The trailer is somewhat larger than some of the others, being 7½ feet long by 44-inch box, and it will carry a boat in addition to its regular load.

By no means has the original automobile tent been lost sight of during the development of the trailer idea. A good many autoists do not want a trailer astern, preferring to make camp with a tent every night, and this has been met with several designs, besides the original tent described at the beginning of this article. One of these is shown with the tent facing the car and the front flap led over the top of the car roof. Windows are provided for ventilation and the larger sizes with an interior partition. The sizes in which this tent is made are 7x5, 7x7 and 7x10; 8, 12 and 16 pounds respectively. All are provided with floor cloths sewed in as part of the tent, and all but the smallest have a solid front on the car side, with entrances on each side.

Another design provides two lean-to tents, one on each side of the car, utilising the interior of the car itself as part of the storage room, while still

another utilises the running board of the car as the front end of a double cot bed with the tent attached to the under edge of the car top coming out in a lean-to over the cot. What was needed was some sort of flexible spring mesh that would go in a collapsible pressed steel frame on which a mattress can be laid, for, in a bed of this width, a canvas bottom would simply bag in the middle. This bed is 48x78 inches, and weighs 60 pounds with mattress, and the shelter top is of 12-ounce duck canvas. A frame coming out from the rear end of the bed holds the rear corners of the tent strong and secure, while the entrance is from the tonneau, which is also the best possible place for a dressing room. The whole thing packs into a long box-like package, 51 inches long, which is bolted to the running board and can be opened out in a very short time, or removed entirely from the running board when your car is not on cruise.

Developing the trailer idea into the field of the permanent camp with board floor, a trailer has been designed in which the floor folds up to make the body of the trailer, while the tent, which is really a folding canvas house, 10 feet 2 inches by 7 feet 6 inches, with high perpendicular sides, folds up to make the cover of the trailer. This leaves room inside to pack the wire spring cots,

icebox, two-burner gasoline stove, camp furniture, etc. Opening the trailer out gives you a wide, flat board floor, with the cots at each side, each double and so accommodating four in the party, and the stove, icebox and table are set up at the rear end of the house. The tent is of 10-ounce duck, waterproofed, with fly over the top for coolness, and the frame is of wood struts, ridge and uprights. This tent-house has four celluloid windows, two at each end, and when set up reminds one very much of the popular tent-houses for all-summer camping.

Another idea in touring-car tents consists in having a tent large enough to close the entire car, using the car top as the tent roof support and pegging out the slant of the roof on each side of the car to make a double tent extending out about 7 feet each side of the car. This is made to fit the 11-foot Ford touring car as the smallest size, and from that up to go over a 16-foot car. The tent to fit the Ford weighs 25 pounds and folds to a bundle 12 inches in diameter by 24 inches long. The walls of this tent are 2½ to 3 feet high, which, with the rise of the roof to the top of the car, gives plenty of headroom, and the double tent permits the eating-table on one side of the car and sleeping quarters on the other.

Finally, we have a bed which is swung from the roof of the auto itself. It is not a hammock, but a substantial frame with iron rods and canvas bottom and connecting cloths reaching to hooks in front and rear edges of the frame of your car top. The weight is about 12 pounds, and it will sleep two.

As much of our best hunting and fishing is nowadays reached by car, in places inaccessible from the railroad and only to be otherwise reached by back packing or taking a chance on getting a country rig to get you on the spot, and, since the car gives every hunter and fisherman a wide radius of sport within car distance of his home, the trailer or tent solves the problem of how to get there and stay there to get your fill of the sport instead of having to drive back home through the night.

CHAPTER XV

WINTER CAMPING

My first "white" camp lasted more than a month. As the transcontinental train rolled across the prairies, the vast Rockies loomed up, covered with snow. From the rocky slopes, where no snow could stick, down their flanks and out on the prairie foothills, all was a mantle of pure white. I looked at them in some apprehension; were we to spend more than a month there camping, travelling and hunting under such conditions? And, if so, would my time-tried camping outfit prove adequate? Then I recalled another winter camp, in the South, where there was no snow, but where the night temperatures went down to two above zero and generally hovered around twenty, or ten below freezing; also other cold weather camps in the early spring and fall, when the ice formed in the pails every night, and I realised that snow conditions were really warmer than these, and that any outfit that was adequate then would be adequate now.

In point of fact your body is the real heat centre—a sort of stove. It gives out quantities of heat, and if this is conserved by proper clothing and bedding you are comfortable, no matter what the weather may be doing. This is the whole secret of the matter, and, once mastered, winter camping proves the most enjoyable of all outdoor recreations, for those pests of all summer outings, the insects, are refreshingly conspicuous by their absence. However, I can conceive that an outing in the dead of winter, with inadequate clothing and bedding, would prove anything but pleasurable, and even dangerous. I know of one rash scoutmaster who took out a whole troop of boys with the usual scratch outfit, good enough for summer hikes, and supplemented by a few extra blankets. They stuck it out one night; came back home next day rather worn out, with most of the boys having colds, and one narrowly missing pneumonia.

But let me hasten to show the woodsman's side of the picture, so that you can see how different the affair becomes with a real outfit. That snow on the Rockies turned out to be a mere drift, only two inches deep, and within two days it had nearly disappeared. The cold at night was always below freezing, but our wool and Mackinaw sleeping

bags and regular winter outing clothes proved as adequate there as in our various camps in the East. We made 150 miles on horseback during the next six days, and finally pushed on over the Continental divide down into the Pacific side of the ranges. Here the very atmosphere spelled snow, and that night over a foot fell. We woke up to see the world buried in deep snowy white, the spruces laden thick with their white burden, and the big flakes coming on down swift and fast. The big "rag house," our 10x15 ft. wall tent, was buried heavily with snow, and my Forester tent almost out of sight, with high banks of whiteness driven up on its sides. We spent that day in making everything strong and secure, for it is the weight of snow that drags up tent pegs, and buckles in the eaves and ridge. Four whole trees were used up on the wall tent, each of them a four-inch dead lodgepole pine; one forming the ridge, two the eave poles and the last the posts for the latter. The ground was not yet so deeply frozen but that a few cuts of the axe would get through the frost, letting these posts be driven in deep into the duff. One end of the ridge pole was lashed to a tree that in a measure sheltered the tent from snow fall, and the outer end was supported by stout shears cut from the tops of the

four trees, which tops also furnished the supply of tent pegs. The eaves were guyed out and lashed to the side poles, making the roof strong and flat. For two weeks the rag house sheltered us, while for the same time the snow came down endlessly, with but two sunshiny days of intermission, and by that time the snow was three feet deep. The forester tent we let bury herself, simply clearing out a hollow in front large enough to hold the backlog fire. The snow soon formed a sort of self-supporting arch over the small roof of this tent, and this arch was lined inside with a skin of ice so that in time practically no weight of snow came on the canvas roof. With the big tent the roof problem was simple, one just slapped the snow off it from inside as it accumulated, a vigorous blow on the canvas from inside the tent sending the snow flying. If it had turned bitter cold we should have laid poles up from the side pole to the ridge and shingled them with balsam browse, but this is hardly worth the time necessary to do it if the temperatures are around twenty above zero. One begrudges this time taken from the business of the trip, which is hunting, and unless necessary to keep the tent walls from radiating too much heat, I should advise against it.

After the first three days of snowfall the animals began to move around and the forest became full of tracks. In due time three elk, a grizzly bear and a mountain sheep came to grace our game pole, and, as we were not of the brand of hunters who kill merely for the trophy, leaving the fine carcass of good meat to rot in the forest, our camp activities were in a great measure spent in jerking all our abundance of meat, fleshing hides, boiling out heads and getting our trophies ready for the taxidermist. We were four hunters; no guides; each man depending on his own skill and self-reliance; and each day, with belt axe outside in the Mackinaw belt, and emergency ration in pocket we would fare forth into the silent whiteness, to cover some fifteen miles of mountains and valleys, alone, unguided save by our stout hearts and true compasses, to return at night weary but with a healthy appetite that could consume four times the average meal of civilisation. A jerky frame of spruce boughs, hung with strips of meat, was established near the camp, and a fire kept going under it by whoever happened to remain in camp, and, slowly, more than a thousand pounds of good meat was reduced to dry strips as hard as hickory, the whole not weighing over three hundred pounds.

For some time I slept alone in the forester, but, as an open tent in winter needs a backlog fire and this fire uses up an unconscionable quantity of timber, I gave it up and moved into the rag house, where we had that winter blessing, a tent stove, and the forester was used forthwith for a store room for grub and duffle. In the rag house a certain régime of order and neatness was instituted and lived up to. For four men to live in a space ten feet by fifteen and still have room for a tent stove, requires that during the day the bedding shall be neatly rolled and stowed in the back of the tent, leaving all the floor space for cooking and eating operations, also drying wet clothes at night. "A man'll as soon wade through hell on wax legs as go through packing snow without getting wet" is an old mountain saying, and I have never yet come across any fabric that will stand the constant pounding of caked snow against one's legs, nor any boot, however well greased, that will not finally become porous to snow and soak one through to the skin before nightfall during the day's tramp. The inevitable is usually warded off by boot grease until about four o'clock in the afternoon, when the wetness makes itself felt, and by nightfall, on returning to the tent, the first thing done is a change to dry clothes out of the

kit bag, and an immediate drying of the freezing, soaking socks, drawers and trousers, worn during the day, needed again on the morrow. To this end not only is a clothes line run along the ridge under the pole, but a close-up drying rack is arranged around three sides of the stove, under the immediate eye of the cook, who transfers nearly-dry garments to the clothes line as fast as the fire has done the major part of the drying. As an auxiliary to this, a sock-drying fire is generally maintained outside the tent, in a cleared space in the snow, generally the same space reserved to the chopping block during the day. Drying socks is a fine art, and the punishment for carelessness or slovenliness is the loss of the sock, an irreparable loss when your nearest trading store is fifty miles away, over the Continental Divide and not to be reached until the trip's end! *Some one* must be on guard, all the time, when an open fire and a circle of socks are in proximity, and that some one must have his wits about him and be continually on the feel so that no sock be scorched.

Meanwhile the supper is being prepared on the stove. A huge six-quart mulligan of elk steaks, grouse breasts, onions, potatoes, macaroni, rice and tomatoes is bubbling back on the stove; a

IN CAMP IN THE ROCKIES — THE 12 X 18-FOOT WALL TENT

THE FORESTER TENT IN HEAVY SNOW

batch of corn bread is rising in the oven; a pot of tea simmering; a mess of prunes, apricots, peaches and apples is stewing, and soon these delicacies are served on a tarp, spread out on the tent floor, and each man's place set with plate, cup and eating utensils; sugar, evaporated cream and butter gracing the centre of the table. The above is a meal for four hungry hunters!

Pipes, talk, and dish-cleaning occupy the remaining hours, and then, about nine o'clock, the beds are rolled out on the floor space. Mine is a caribou skin fur bag, warranted warm in a snow bank; my neighbour swears by a mess of blankets; the cow baron retires into a huge wool and canvas cowboy's bed-roll; and the Indian rolls himself in a couple of Navajo blankets and is content. I prefer the farthest corner of the tent, next the rear wall, and often have I raised the sod cloth a mite, to a hole that I know of through the snow-bank, down which a column of cold forest air will come flowing into my nostrils.

The art of going to bed in a winter camp is one devised after some little personal study. While many sleep in their clothes, I have found that it is warmer to sleep in pyjamas, with one's clothes pulled into the bag and wrapped loosely around. In a sleeping bag the problem of what to do with

the unoccupied cold air spaces in the bag has puzzled many an outdoorsman. It goes without saying that your bag should fit you snugly, with just room to turn around in it without binding; too large a bag is always cold to sleep in, no matter how warm its texture. The blanket man does not have this trouble, his blankets fit him snugly and can be tucked in tight around the feet; but if he is a restless sleeper he soon unrolls them. I have found that one's extra clothes fill all waste space nicely inside the bag, and, if you find yourself getting cold, simply retrieve a few of them and pull them over the cold spot. If worn on you they will surely be cold, as they restrict blood circulation and fit so closely that there is no opportunity for heat-conserving dead air spaces.

One's head and feet need particular protection in sleeping when the snow is flying outside the tent. Without a night toque your head will soon be uncomfortably cold and keep you awake, crying out for protection, and no brimmed hat will be anything but an uncomfortable nuisance, always coming off and waking the sleeper with a cold head. Night socks are also essential; your feet are farthest from the source of heat, the lungs and heart, and the blood does not flow through them in such large currents. Wherefore, an extra pair of

night socks with a pair of wool night slippers will be needed, to keep them warm and comfortable, for, if they are cold, you cannot get to sleep. Finally comes the question of breathing. If you breathe the icy air of midnight directly through your nostrils it will surely cool you down, for no lungs can stand the constant influx of below-freezing air without distress. To put one's head entirely within the bag is what is generally done by Alaska mail team men, meat men in the snowy mountains, and trappers, but it is a suffocating business. I usually compromise by arranging my coat over my head, with a channel or hole leading out to the outside air. This channel tempers the incoming air by the warmth that your body is continually giving to the garment, and by morning it will become a veritable ice cave, crusted with white frost from your breath. But meanwhile you will have had a reasonable amount of fresh air to breathe all night, without getting chilled.

You and your sleeping bag thus become a sort of heat unit, independent of the tent heat which soon fades, your body giving out heat and the bag conserving it. When a condition of equilibrium is established you dose off to sleep, and there is energy enough left to restore tissues and rebuild the body for the next day. With inadequate

clothing, no energy is left to replenish the body, and you arise worn and tired, all your vitality having gone into heat-making. One soon finds from his personal equation just how much blanketing is needed. A good fur bag is the answer for robust and feeble alike; with blankets, one man may do well with three pair, another require four. For quilt sleeping bags, a regulation wool quilt, weighing six pounds, will do for most people for all winter camping, with a light, all-wool single blanket added for very cold weather, around or below zero. In any case the outside of the bag should be of some windproof material like canvas to prevent stealing of heat by conduction. Never sleep in a draught; even the best covering loses a lot of heat by rapid conduction of a current of cold air flowing over the body. And, once the equilibrium of heat is established, be careful how you get prodigal with it. Going out of the bag at night for some fancied want, carelessness with the flaps and the like, lose you a certain amount of heat, and very rapidly too; and it takes hours of the body's energy to restore it again. Never wander around on the damp ground with your night socks on; if they get damp or wet they will chill your feet and all the heat the body can make will scarce suffice to dry them—that takes

a real fire! Better change them, or get up and dry them before the stove embers, in your bare feet, in preference to trying to last out the night in damp night socks.

After two weeks of this snowy life, when it seemed eternally Christmas, the elk park "pawing" got so scant for the horses that their bones stuck out gauntly and we decided on a return to the rails. Five days' horse travel (one of them slush-bound) through the deep snow sufficed to do the fifty miles, and it involved four typical nomadic winter camps. The first was made as night came on, up on a shelf of the mountain seven miles up the slopes towards the Continental Divide. A spring at that point still spread a flow of water under the ice, and the giant spruces, heavy-laden with snow, covered the whole site and filled the mountain side for miles around. It was dark and snowing hard, a veritable blizzard in fact, as we unloaded the pack animals. All our saddle horses were loaded down with bags of jerked meat, so we were all walking on webs,—the long, three-bar, Cree snowshoe for powdery snow. Each of the four men went at his appointed task. One man looked after the horses; another got timber for the tent, a third went for the tent stove and grub supplies, while I started after

browse. Three of us first cleared a space ten by fifteen feet with our snow shoes, down to the hard ice-pan, scraping the last of it off with the back of the axe. Then I set out into the darkness with belt axe, armed with a carbide lamp. A clump of feathery balsams was my object, and a few blows with the axe brought down the snow from them in showers, which, as they fell on my broad-rimmed cowboy Stetson hat, were no bother at all. A man in a toque would have had his neck filled with snow avalanches, then and there! The balsams were cut down and the boughs cut off and hung wheel-wise around a forked stick about four feet high, until I had a sort of fat, furry caterpillar of browse shoots, each about two feet long. It is the best way to carry browse in quantities. Meanwhile the others had got up the ridge-pole and I went around the walls and tied each peg rope to a short stick, burying it deep in the snow and finally shovelling snow up all around the sides with my snowshoe, burying the sod cloth and holding it down tight and firm. By the time this was done and I was back with a second caterpillar of browse, the tent stove was up and the evening meal simmering. Fried elk steak, an enormous mulligan of five grouse, shot during the day's march; tea, and a double batch of corn-

bread was the meal that the cook believed enough for us four, and, while it was under way, I spread the browse thick on the ice, and topped it with a tarp. The bed rolls were dusted of their snow and brought inside, and presently all four men sat down to a steaming meal. At about the second quart of mulligan, two of us gave up, leaving the Indian and the cow man still prodding into the camp kettle, at which business they remained long after we had unrolled our beds and retired to pipe-dream and watch our socks drying over the stove. The blizzard howled outside, but within all was warm and comfortable. A large acetylene lamp and a candle lantern supplied plentiful illumination, and the talk ran mostly on art and literature, with the cowman and the Indian drinking in hungrily this discussion from a world so foreign to their daily lives and therefore so attractive to listen to.

The next day the snow turned to rain and we were slush-bound, for it was so soft as to ball under the horses' feet. Each sought his favourite recreation. The cowman worked at saddle gear; the Indian carved a mountain ram's head on the stock of his pistol; the cook did a two-days' supply of biscuits—about ten batches of them!—while I wrote in my notebook and went birding for

grouse in the afternoon. We were as comfortable as any man in his country house, far more so than the poor commuter who has to plough out in such weather, catching the morning train under an inadequate umbrella. Winter camping, forsooth! Why, it was easier to make one's self comfortable then than in midsummer!

The next day all was sunshiny and clear, and the sea of vast mountains round about an incomparable panorama of beauty. This day we got the horses over the Continental Divide, where the snow was four feet deep in some places and we had to take off the webs and tramp a trail for them to prevent them floundering, belly deep. By noon we were over it, and hiking down the long burnt Valley of Desolation, ten miles in the path of an old forest fire. We pitched camp in a little valley of prairie grass where the horses could get at feed by pawing for it, and we men had a brook for water. It was a mild night, with the moon shining in silver splendour, and camp making was a dream of delight and an occasion of the grandest sock-drying bee of the trip. Next morning a howling blizzard was raging and the temperature had dropped forty degrees. We set forth, up the long slopes, along hog's-backs and ridges, stopping now and then to shoot prairie chickens

or timber grouse which flew like feathered flashes of lightning through the scurrying snowflakes. I fell far behind, through too much hunting and general independence, and so got lost among the precipices, and, while nosing around, one of the party came back to find me. Four o'clock came, and the disappearing sun warned us that camp making time was at hand. We chose a site in a desolate valley with a tiny brook flowing through it, nothing but rocks and sparse vegetation, tumbled about on low hills about the size of the Alleghenys. A single clump of spruces looked inviting to the party. To a tenderfoot that clump would have appeared impossible, and he would have attempted to push on. It was filled with a dense growth of alders, each an inch thick, with nowhere a place to squeeze in the tent. But we went at it with our belt axes and soon had the alders cleared out, cut off close to the ice pan. Then up went the tent and the tent stove, the floor was filled with browse, and the outside alder stumps utilised for tent pegs, and soon we were cosy and at home. Not over an hour had been consumed in turning that howling, blizzard-swept valley in the foot-hills of the Rockies into a homeland for us, with our house built in the only shelter available. Under the spruces the snowflakes

did not come down so thick, and a sock fire was started outside the tent. By dark the lanters were lit and all hands were partaking of a mountainous feed. It was the last day of that winter camp, for, next day we rode out on the prairies to the east, with never a sign of snow on their vast brown stretches. Up there in the mountains they were still having a big time, with the snow shooting out at us from the mountain passes and an occasional flurry chasing us out on the prairie. They disappeared into nothingness in the rich prairie grass, on which the horses fed like starved hounds. A twenty-mile march brought us out to the rails, and I slept that night in a civilised bed, a Pullman berth, for the first time in more than a month. I came out of those mountains a real man, full of pep and ginger, intense and imperious in my ways, as different from the half-alive human worm that I become when a month or so of civilisation has got in its ruinous work, as a pugilist is from a bank clerk!

For the last seven years I have camped out more or less every winter, and the following ideas seem to come in the category of things proven true and reliable: (1) A closed tent and a tent stove are far preferable to an open tent and a back log fire, for the latter uses too much wood to

be worth the effort and its smoky and acrid atmosphere is always drifting into the tent making it an eye-watering sort of living. (2) The cold has nothing to do with living in the winter woods; you *are* the stove; see to it that you have warm clothing and warm bedding. And this does not mean *heavy* clothing or heavy bedding. In the daytime you labour so hard that even a Mackinaw is a burden; a good stag shirt is the best wear, until nightfall when a sweater coat and perhaps a light pocket-sized rubber raincoat will be needed to counteract the cold and wind. A fur bag weighing ten pounds; a red Hudson's Bay blanket, four-point, some twenty-eight feet long, folded four times and enclosed in a gabardine or shelter cloth covering; or a quilt bag of wool batts and sateen facing, plus a single 6x7 ft. all-wool blanket inside; these three are, any of them, ample winter bedding, weighing ten pounds—take your choice! (3) For winter clothes I have come to prefer long wool trousers to breeches; drab wool shirt; stag shirt over it; and two pairs of socks under cruisers' moccasins or rubber "overs" with leather tops, as good winter clothing for daily use. Add a Mackinaw in the East, or a wool sweater coat in the West with a rubber coat over it, or else a khaki coat, fleece-lined with high

collar, and you have protection handy when you get exposed to the cutting wind, or the chill of night. You need one change of flannel underwear, two more pair of socks and a pair of night socks, night felt slippers, a set of pyjamas, and a night toque. For a hat the broad rimmed Stetson seems best, as snow is continually falling off saplings and bushes when you are poking through the woods, and a snow shower is a constant occurrence. A bandanna to tie around the whole works like a sunbonnet, when the cold is intense enough to attack your ears in the woods, is not to be sneezed at—you may have to put on the night toque too! But, as a rule, on the march or on the hunting trail, you warm up so much that it pays to endure the cold at first, in preference to lugging around a Mackinaw or other superfluous garment through all the day's hunt.

(4) As for accessories, tent stoves have been treated at greater length in another chapter, and in the matter of axes the two-pound Hudson's Bay, supplemented by a light, one-man timber saw, will do very well for ordinary camping, and a full axe if you have horse or toboggan transportation. For snowshoes you will need bear-paw, 27″x14″'s for eastern, wet packing snow; Adirondack 12″x50″'s for light drifty deep snow; and,

for the intense cold, powdery dry snow of the Rockies, a still longer shoe, 60″x13″, is generally used, often made three-bar. Most people do not seem to realise what the hole in a snowshoe is for, and so tie the thong so loose that their toe is continually getting over on the front bar and locking the shoe fast to the sole of the foot. The motion of snowshoeing is simply lifting the forward end, and to do this your toe must go down into the hole, as your foot remains parallel to the ground as you lift it. So, in tieing the thong, first put enough turns around the thong where it goes over your toe to insure that it will not permit the toe to slide forward, while not at the same time binding the toe too fast. The thongs then cross your foot and go back around your ankle, where they are finally tied in a bow knot in front of the ankle. To prevent shovelling up too much snow and thus carrying a heavy load, see that the toes turn well up.

(5) If you are going in powdery snow or bear-paws, it is well to make yourself as light as possible by transferring most of your belongings to the toboggan. This is a light sled of alternate oak and ash slats, usually 24 inches wide by 7 feet long, and will haul easily with 100 lbs. of load wherever there is a trail. It is *not* a success in thick timber

heavily grown up with underbrush and goes hard in powdery snow, but most woods going is along woods trails that get somewhere, or, in winter, on level stretches of hard snow-covered lake or river ice, so that, next to horses, a toboggan is the best transportation. In loading it, the stove and camp kettle usually go in front, up under the curve, and then comes the duffel, well protected by waterproof tarps from getting wet by the snow, which continually crowds aboard the toboggan.

(6) As to shelter I would place the large wall tent first for a party of hunters, as producing the most warmth and comfort on the least expediture of time and energy. It can be put up on a nomadic camp as quicky as any other of the same size, as you will note from my description of our Montana trip. For a party of two, the snow tent or the All-around tent, described in my chapter on Camping Out de Luxe, is a good selection, or, for three the Esquimaux tent. Particularly on a back-pack hike on snowshoes this is a fine tent, as it provides a living room as well as a sleeping room, for, in snowy weather you are indoors a great deal more than in summer, and want more room to live, move and have your being in comfort.

I have slept in the Indian teepee in winter, and it ought to be the best of all for a permanent

camp, but this teepee was managed by white men, who succeeded only in filling it with smoke all day and draughts of wind all night. The true Indian way is with a draught cloth completely around inside the teepee in winter, pegged down tight to the ground, the draught coming in under the skin of the teepee around the base of the poles. This provides a current of air to carry off smoke, and also makes a double lining to the teepee, making it much warmer in winter than the single wall of canvas of the white man's tent. Our teepee had only a summer draught cloth, and the wind whistled around its ends and under it, making it as draughty as sleeping in a chimney. The weather was only 14 above zero, but I slept cold—a dreary piece of mismanagement altogether! I have since lived with real Indians who knew better, in fact I could have done better for them myself then, but the owner of the lodge "knew all about it," and so my voice went unheeded.

If you are an outdoorsman, do not den up all winter because of the weather. There is plenty to do in the winter woods; ice fishing, trapping, shooting foxes and hawks,—lots of red-blooded sport. Camping out in winter looks like a brave thing to do, but really there is nothing to it. Your usual fall hunting outfit, plus an extra blanket and

a good axe, are the principal ingredients for success. The best time to go is the latter part of February and the early part of March, when you will have warm sunny winter days, with a thaw under way and the snow packing well. With no insects and snakes, with the woods a wonder of sunlit whiteness, it will prove a most enjoyable experience!

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